THE CALL OF THE MOUNTAINS

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THE CALL OF THE MOUNTAINS

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MOUNT RAINIER, OUR GREATEST SNOW PEAK, 14,408 FEET.

THE CALL OF THE MOUNTAINS

RAMBLES AMONG THE MOUNTAINS AND CANYONS OF THE UNITED STATES AND CANADA

BY

LE ROY JEFFERS, A.C., F.R.G.S.

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WITH ILLUSTRATIONS

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INTRODUCTION

For many summers I have roamed among our finest mountain and canyon scenery, viewing it as a mountaineer and explorer. Many of these regions have now become National Parks, while others still await this protection if their natural beauties are to be preserved from commercial ruination.

In 1915 I suggested that our leading mountaineering clubs unite in a bureau with headquarters in New York. Early in 1916, nine clubs and societies joined in this manner under the title of the Associated Mountaineering Clubs of North America, of which I became Secretary. It now comprises fifty organizations as follows:

American Alpine Club, Philadelphia and New York.
American Civic Association, Washington.
American Forestry Association, Washington.
American Game Protective and Propagation Association, New York.
American Museum of Natural History, New York.
American Scenic and Historic Preservation Society, New York.

Adirondack Camp and Trail Club, Lake Placid Club, N. Y.

Adirondack Mountain Club, Albany, New York.

Appalachian Mountain Club, Boston and New York.

Boone and Crocket Club, New York.

British Columbia Mountaineering Club, Vancouver.

Buffalo Society of Natural Sciences, Buffalo, N. Y.

California Alpine Club, San Francisco.

Camp Directors Association of America, New York.

Canadian National Parks, Dept. Interior, Ottawa.

Cascadians, Yakima, Washington.

Colorado Mountain Club, Denver.

Coöperative Campers of the Pacific Northwest, Seattle.

Ecological Society of America, Champaign, Ill.

Field and Forest Club, Boston.

Fresh Air Club, New York.

Geographic Society of Chicago.

Geographical Society of Philadelphia.

Green Mountain Club, Inc., Rutland, Vermont.

Hawaiian Trail and Mountain Club, Honolulu.

Inkowa Club, New York.

Klahhane Club, Port Angeles, Washington.

League of Walkers, New York.

Mazamas, Portland, Oregon.

Mountaineers, Seattle and Tacoma.

National Association of Audubon Societies, New York.

National Forestry Program Committee, New York.

National Park Service, U. S. Dept. Interior, Washington.

National Parks Association, Washington.

National Parks Committee, New York.

New York State College of Forestry, Syracuse, N. Y.

New York Zoölogical Society, New York.

Olympians, Hoquiam, Washington.

Palisades Interstate Park Commission, New York.

Pennsylvania Alpine Club, Altoona, Pa.

Prairie Club, Chicago.

Rocky Mountain Climbers Club, Boulder, Colorado.

Sagebrush and Pine Club, Yakima, Washington.

Save the Redwoods League, Berkeley, California.

Sierra Club, San Francisco and Los Angeles.

Society for the Preservation of Native New England Plants, Boston.

Trails Club of Oregon, Portland.

Tramp and Trail Club, New York.

Travel Club of America, New York.

Wild Flower Preservation Society of America, New York.

Intended primarily as a center for mountaineering activity and information, we soon realized that the association might occupy a wider field of usefulness. Nowhere is nature being ruined more rapidly than on this continent. Commercial greed is destroying the beauty of our mountain scenery

without regard for the present or future public welfare. Everywhere the unscientific lumberman is devastating our forests, imperiling our water supply and permanently injuring our agricultural lands. Wherever there are irreplaceable forests, as the California Redwood or the Douglas Fir, they are being rapidly cut by wasteful methods. The power site corporations would rob us of our waterfalls and turn our most beautiful valleys into lakes. Under the worthy plea of necessary irrigation, we are losing the natural beauty of many a priceless mountain lake; and the question was recently before us whether the lakes in our National Parks themselves should continue to have protection. Where is there a true mountaineer or lover of nature who has roamed over our western wonderlands and not cried out as he beheld the black devastation that follows the sheep herder? From many of our fairest meadows and hills the flowers and plants are gone forever.

It is a privilege for any mountaineeer, or traveler, or nature lover at home, to assist in the preservation of flower and tree, of bird and animal life. Many of our members are doing noble work in arousing the public and in influencing legislation. The Bureau is working for the creation, develop-

ment, and protection of our National Parks. By means of articles and lectures the Secretary is calling attention to our finest mountain and canyon scenery and to the needs of specific regions. An annual Bulletin is distributed to mountaineers and to an increasingly interested public.

As Librarian of the American Alpine Club, I have gathered an extensive collection of mountaineering literature and photographs of scenic regions in the New York Public Library at 476 Fifth Avenue; and as Manager of the Book Order Office of the Library, I have gradually purchased a similar collection of books, comprising the more popular titles for loaning through our branch library system.

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THE CALL OF THE MOUNTAINS

THE CALL OF THE MOUNTAINS

CHAPTER I

THE CALL OF THE MOUNTAINS

It is not the fortune of every one to live in sight of the mountains, nor is it the habit of all who dwell amid their enfolding arms to seek inspiration on their topmost pinnacles. Many indeed, who have only read of mountain climbing, consider it wasted energy. But to all who are willing to receive their message, the glorious, eternal mountains ever extend a silent invitation. To stroll up even a hill is often to find at its summit a new vision of life and of its possibilities. As the true mountaineer toils upward from the valley, he is rewarded not only with physical exercise of the greatest variety, but his thoughts expand before the unfolding landscape, while his heart is filled with new courage for the battle of life, and with a deeper sympathy for his fellow men.

THE CALL OF THE MOUNTAINS

The sport and the art of mountain climbing is in many ways the finest and most interesting of all outdoor activities. Its thrill may be enjoyed in safety far later in life than may other forms of vigorous exercise. None but the climber can know the fascination of the ascent or experience the joy of the summit. Courage and endurance are developed, for all one's skill may be required in solving the problem of a difficult rock peak; or one may find his resources taxed to the utmost when he is overtaken by storm amid the snow and ice of a glacier-hung summit.

In mountaineering one enters into intimate relations with the greatest heights and depths our planet has to offer, while a new world is opened to the student and lover of nature. All true mountaineers are at heart explorers, and the topography of a region is soonest revealed to him who ascends its highest elevation. In the pure, free air of the mountains one may part with his cares and find renewal of his life. In the strenuous life of to-day, one's mental and physical health demands outdoor exercise of interesting variety. Nothing can afford better training for the climber than cross country and hill walking; but we eagerly await the day when convenient airplane service will

Byron Harmon

THE SPIRIT OF MOUNTAINS AND OF MOUNTAIN CLIMBING!
FIRST ASCENT OF MOUNT RESPLENDENT, CANADIAN ROCKIES, 11,173 FEET.

enable our city dwellers to spend a frequent week end, and a far longer vacation than is now possible, amid the companionship of the mountains.

For the beginner much hardship and danger may be avoided by joining one of the various mountaineering clubs that offer summer outings amid our western peaks. From two to four weeks of camp life are offered, sometimes at a fixed camp from which knapsack trips and climbs are conducted; while with other clubs one may travel daily from ten to twenty miles afoot, and camp is moved by pack-train. On a mountaineering expedition in which one is to be absent for a few days from permanent camp, a sleeping bag and provisions are carried on one's back. An ice-axe is taken to cut steps in the ice on a precipitous glacial ascent, to sound for concealed crevasses, and to aid in the descent. A rope is carried, which the climbers fasten about their waists to afford protection in difficult rock work, or on glacial snow fields where there are likely to be hidden crevasses. Goggles of amber glass are necessary to protect the eyes from the glare of the snow and sometimes grease paint is used to keep the face from the burning actinic rays. Most important are the alpine boots, which are specially made, and must

be edged and studded with Swiss nails for safety in climbing.

A mountaineer should be expert in the art of balance, and it should be easy for him to stand directly upon the brink of a precipice. He ought never to be careless in his movements, but must keep steady, whether the handholds are ample or only give opportunity for the use of a few fingers. Occasionally his weight must be supported on a narrow ledge by but two or three nails in his boot. A true mountaineer will be cautious, but fearless in the face of danger.

There are many thrills which a climber may enjoy. On crossing the upper snow fields of a glacier the man or woman next him on the rope may suddenly disappear from view into a hidden crevasse of unknown depth, falling with the snow bridge for ten or fifteen feet until checked by the rope. In reaching the bergschrund, or great crevasse near the head of a glacier, there are yawning chasms difficult to cross, especially when there is an overhanging snow cornice above them. In precipitous climbing the rock is often rotten and may suddenly give way with disastrous results, unless one's companion has belayed the rope about a rock, or has a sufficiently secure position to with-

R. L. Glisan

PILGRIM'S PROGRESS.
MOUNTAINEERS EN ROUTE FOR MOUNT OLYMPUS, WASHINGTON.

stand the unexpected strain. Often there is the unseen peril of falling stones or avalanches which may sweep the route of ascent. When the snow is deep and powdery covering a steep icy slope, or when it is wet and heavy on the heights, the mountaineer must proceed with extreme caution if he would avoid starting an avalanche from which he cannot escape. Electrical conditions on a mountain top may become exceedingly dangerous, imperiling the whole party, which are sometimes struck by lightning. High winds, against which no one can stand, frequently sweep the upper slopes of a mountain; and sudden storms arise which lower the temperature, coat the rocks with ice, and veil everything in impenetrable blizzard. The careful mountaineer may avoid many of these perils, but when they are encountered his skill and resourcefulness will be put to the test. He need never experience fear, for on the heights Divine protection seems near.

Who is there who does not recall with rare delight his first vision of the high mountains glistening with snow, or transfigured with rose and purple in the alpenglow? Were not these radiant heights of heaven? Then did childhood's dreams become reality, and the acquaintance of a lifetime

adds but details to that perfect memory. Few are the climbers whose chief concern is to break existing records, with eye for the hidden beauty of the waterfall, the unpaintable hues of glacial ice, or the myriad forms and colors of pure mountain snow as it glistens in the sunlight or purples in the shade. Perchance the climber may never awaken to the vision of God that awaits him on every mountainside. His summit may only be a point en route on which to eat, to sleep, to leave a record; or it may be his open door to a new experience of reality and to a deeper acquaintance with his heavenly Father.

Alas, how few are the mountain ranges with which man has become really acquainted! Many have been mapped, but with almost none does he enjoy an intimate fellowship. Here and there for a few brief hours some enthusiast has wandered, finding rich treasure. But amid the storms and the sunshine mountains are born ever anew, and one seldom may find them the same in spirit. Like the call of the sea, forever potent to him who has wandered amid its vast spaces, the call of the mountains is heard by the true mountaineer, and he returns again and again to their inmost sanctuaries. Joyfully he seeks the companionship of

R. L. Glisan

ASCENDING MOUNT RAINIER FROM THE NORTH.

their highest solitudes, resting his soul at last amid their enfolding silences. Here the voices of nature speak to him more clearly than among the abodes of men, and here his awakened spirit may commune in deeper reality with the Eternal Spirit whose voice is heard in the silence of his soul.

THE NORTHWESTERN UNITED STATES AND CANADA

CHAPTER II

A DAY AND A NIGHT ON MOUNT MORAN, GIANT OF THE TETONS

ON account of the scarcity of professional guides on this continent, the usual initiation to the mountains is with some mountaineering organization where opportunity is offered to climb with experienced amateurs. But much of the resourcefulness of a competent mountaineer must be gained through his own initiative. While solitary exploration and climbing are not to be recommended to another, the brevity of vacations and the difficulty of finding suitable companions at the time are often temptations to follow the example of John Muir, who was the most ardent and fearless mountaineer that America has known. Although he was often alone he never felt lonely, for had he not the companionship of God and of the living world about him? When the heart is at peace what is there in nature to harm one?

On my journeys among the mountains I carry sleeping bag and mountaineering equipment on my

back, with ice-axe in hand. Leaving the world behind while exploring some interesting region, I have usually lived on dried fruits, nuts, chocolate and crackers, with plenty of fresh air and water. Starting at daybreak and traveling until dark, I have often traversed twenty or more miles of mountainous country in a day, including one or two ascents on the way. Among many mountaineering experiences one of the most interesting was that of a few summers ago in the Teton Range of Wyoming.

The little hamlet of Moran on the eastern shore of Jackson Lake is about 70 miles by auto to the south of the geysers of the Yellowstone, and may be conveniently reached by a regular service in summer. Here is a glorious view of the rugged Tetons rising impressively beyond the lake. Directly opposite is Mount Moran, a vast massive, 12,100 feet in height, with precipitous cliffs majestically encircling its summits. To the south are serrated peaks guarding Leigh and Jenny Lakes, with the Grand Teton, 13,747 feet, looming fantastic and ideal like some Himalayan giant. Seen from this point the glaciers and cathedral spires of the surrounding mountains lead upward to a culminating peak which grandly dominates them all.

U. S. Reclamation Service

TETON RANGE AND JACKSON LAKE, WYOMING.
GRAND TETON ON LEFT, MOUNT MORAN ON RIGHT.

Although a little range in extent, the Tetons are unique among American mountains, having many unclimbed summits with interesting problems that await the mountaineer. From the east they rise with unusual steepness from 5,000 to 7,000 feet above the surrounding country.

As the Grand Teton had already been climbed, I was more interested in the possibilities of Mount Moran which was said to be unclimbable. The Superintendent of Yellowstone Park had just viewed it from various sides, everywhere finding sheer cliffs. In August, 1917, a considerable party ascended as far as the glacier on its eastern face, which they named Huntley Glacier. It was then reported in the *Scientific American* of March 30, 1918, that "The summit has never been attained and probably never will be, as the last 3,000 feet of the mountain are sheer perpendicular walls of rock." The local authority on the mountain told us that he had spent many years in hunting sheep on its crags, always searching for a route to the summit, but he was always turned back by unscalable cliffs. He recounted an experience in which he nearly lost his life, and he had come to the conclusion that the peak could be ascended only by driving staples into the cliffs.

These reports made the mountain seem all the more interesting, and my wife and I left Moran at eight o'clock that evening for the nine-mile trip across Jackson Lake. There was a brilliant sunset with radiant clouds as the full moon rose in the east; but as we neared the base of Mount Moran, its cliffs towered far above us, grim and inaccessible in the night. Impressed with the warning that the walls near the glacier could not be climbed, we decided to investigate the northern face, and we landed as far to the right of the central mass of the mountain as it seemed safe for us to go in the boat. As it was uncertain when we should return to the lake, we made no arrangements for the boat to meet us, expecting to travel south across country to settlers on the Snake River

That night we lay in our sleeping bags while the moon kept watch through the pines, and the silvery clouds sailed over the lake. We were up before six on August 11, 1919, watching the wonderful orange-and-lemon glow of the morning mingle with the blue-gray of the lake. Shouldering our equipment, we started up the slope through a thick tangle of undergrowth and over fallen timber. With uncertain footing, plentiful mosquitoes, and a very hot day, it was a tiresome distance to the

beginning of our climb. More than 1,500 feet of steep slope to the base of the cliffs measurably increased the weight of my 35-pound pack. Finding the route impracticable, we decided to traverse the slope of the mountain toward its eastern glacier. Climbing in and out of ravines and over precipitous ridges, in order to avoid loss of elevation, proved very costly to our strength and time. On reaching a giant rock overhanging the glacial torrent, we left our sleeping bags, taking with us only our rucksacks and my ice-axe. It was a steep ascent of several hundred feet along the ancient pathway of the glacier to the cave in its snout. We entered its cooling portal, curtained by a torrent of icy water, and continued beneath the glacier for nearly a hundred feet. Surrounded by solid ice, from the entrance archway we watched the cloud shadows on the distant lake.

It was my plan to investigate the possibility of working up a couloir in the heart of the mountain, which may be seen in the illustration as the long, narrow streak of snow that nearly reaches the summit. With an early start from the glacial valley there should be ample time to test this route before it becomes excessively dangerous. It is not unlikely, however, that unclimbable cliffs may be en-

countered. Geologically Mt. Moran has a most interesting variety of rock, and its avalanches bring down specimens of many colors. An enormous reddish brown buttress rises from base to summit of the great inner wall of the mountain and is visible against the warm gray of the peak for many miles.

Leaving my wife to descend to our sleeping bags, where she was to await my return, I cut a few steps in the ice to reach the surface of the glacier. It was after 1 P.M. on a hot day, a most unfavorable time for a serious climb on any glacial mountain, for the sun had long been melting the snow on the heights. Already the glacier was strewn with newly fallen rocks, but I pressed on, jumping the open fissures and sounding in the snow with my ice-axe where there was danger of concealed crevasses. I found delicate work in crossing the bergschrund and surmounting the cliff above it, for I had to descend into the edge of the chasm, where there were great passageways and caverns of blue and green, leading to sudden depths which I was not desirous to fathom. The greatest danger, however, was from falling stones which were whizzing down the cliffs to the glacier, and I was not eager to intrude on their line of fire.

Ascending the wall above the bergschrund, I reached the summit just as a giant mass of rock came bounding and crashing down from unseen heights in an avalanche, which passed within a few feet of the trembling rock on which I stood. As the rocks followed the route of my ascent and spread over the entire glacier below me, it seemed unwise to continue my climb. After proceeding a little farther I reluctantly retraced my steps. Thus far my climb had involved only such technical difficulties as are in the day's work of any competent mountaineer; but it is a safe rule never to trifle with falling stones, for they are not a fair test of any one's skill.

A thunderstorm was raging amid the crags as I retreated across the glacier and decided to climb the aiguille which is seen on the left. This in itself proved to be of considerable height, and before reaching its summit, I became interested in the great walls of the main peak. Discovering what appeared to be an opportunity to get on the rocks without reascending the glacier, I hastened down the aiguille, crossed the moraine at the foot of the glacier, and put my theory to the test.

It was after four o'clock and I had had continuous climbing all day, but I realized that, if I

abandoned the attempt, lack of time and provisions would compel my departure the following day. I had found the weak spot in the defensive walls of the mountain near the foot of the glacier, and I easily worked up into a concealed ravine, which I ascended for several hundred feet to the eastern arête of the mountain. Following this ridge I climbed a cliff that was impossible to circumvent, enjoying thrilling views of the glacier almost directly below me; and, on the opposite side, of perpendicular walls of great height. Charming little lakes, nestling close to the base of the range, mirrored the sunshine and the clouds of a summer's day. In the distance lay the brown valley of the winding Snake overarched with rainbows. Thunderstorms were raging among the Wind River Mountains. Far too swiftly the shadow of Moran advanced to Jackson Lake, the sun disappeared, and darkness reached upward from the valley. Meanwhile I left the ridge and traversed the face of the mountain until I came to a long chimney. Entering it I found my way upward in the failing light, reaching and straddling from side to side for possible hand- and foot-holds, and struggling to surmount giant boulders which were insecurely wedged above me in the chimney. At one point

I had to leave it for a short detour on the steep, smooth surface of the surrounding rock, holding on by friction and an infrequent rest for a nail or two of my boot. Again I had to throw my rucksack up ahead, wedge my axe into a crack, and work over a beetling crag. Contrary to custom on a rock climb, I had brought my ice-axe with me, using it in the absence of a companion to lengthen my reach at difficult points. The chimney was many hundred feet in length, and afforded athletic diversion which would have been more enjoyable earlier in the day, when I should have climbed more rapidly.

After leaving the top of the chimney there was a delicate fifty feet or more of vertical cliff and slanting rock, where the slightest slip meant an unhindered descent for thousands of feet. On reaching its summit, I found a level surface, possibly 510 feet long and 96 feet wide, that was strewn with a few loose rocks on which no foot had trod. Arriving at the western end, I looked down into a col less than 100 feet below me. Beyond, there rose another summit of the mountain surmounted by a pile of loose rocks, which made it a little higher. From the lake my summit appears to be the highest, as seen in the illustration.

Under ordinary circumstances I should have crossed the col, but I was facing extraordinary conditions. It was 9 o'clock, and instead of moonlight which I had expected, I was threatened with an immediate electrical storm. Sleet was sweeping against me and clouds were hurrying over from the Grand Teton. I was far above the rest of the range and exposed to the unbroken fury of a gale in the darkness.

Hurriedly I pocketed some samples of the rock, and piled a few stones over a can in which I placed a slip of paper bearing my name. Asking Divine protection, without which I could never have descended in safety, I cautiously felt my way down the perilous upper cliff. The hand-holds were meager and the slant of the rocks so alarming that, if I had started, friction would not have saved me from the abyss. When I reached the head of the chimney I was quite encouraged. Facing outward I felt for foot- and hand-holds, making fairly rapid progress some of the way, but it was necessary now and then to drop my axe ahead. Finally the inevitable occurred and my faithful ice-axe bounded from ledge to ledge, striking fire as it fell toward the glacier. Possibly it served me well, for it warned me that I had descended too far on the

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MOUNT MORAN, WYOMING, 12,100 FEET.

precipice. Taking the hint I slowly reascended to safety on the arête. Thinking it desirable to join my wife as soon as possible in order to remove her anxiety, I pressed on and was finally rewarded by arriving at the head of the ravine which I had first ascended. The moon had now appeared and I progressed more rapidly, although continued caution was necessary, as a slip of only a few feet might easily have been disastrous. Missing the right place to leave the ravine, and not wishing to retrace my steps, I continued down a slope one would be unlikely to descend by daylight, and finally reached the gorge at a point considerably below the glacier. There was now a long and steep descent, over loose boulders that tried my patience, to the great rock where I expected to join my wife. I arrived at 1.30 A.M. to find neither wife nor sleeping bags!

I searched the mountainside and repeatedly called, but only the voice of the torrent replied. It seemed probable that my wife had taken the bags with her and was on her way for assistance. In the morning when we were traversing the mountain, we had seen a cabin a few miles to the south, and I mentioned a camp which was several miles beyond at the southern end of Leigh Lake.

There are no trails, save those of bear, elk, and moose, and one must fight his way with considerable difficulty. Ordinarily I would have taken a brief rest at this point, but it was necessary to locate my wife without delay. So I followed the stream, forcing my way through continuous thickets which offered great resistance, and leaping from rock to rock in my efforts to escape the tangle. For some distance I was able to travel on an avalanche of gigantic white blocks of stone, which had torn their way down the mountain and were now gleaming in the moonlight. Turning to the south, I climbed a ridge, and worked my way with difficulty over fallen timber and down a steep, forested slope where it was impossible to see my footing. Here I clung to branches and bushes to prevent accident when stepping into holes and over cliffs. Toward morning I lay down for a short time, but soon continued along the shore of a morass until it was light enough to cross. With daylight I reached the cabin which we had seen from the mountain, but found it had long been abandoned. I was rewarded, however, by a note pinned to the logs by my wife, stating that she had spent the night there. This was welcome

news, for I had wondered whether I was safe in traveling far from our agreed meeting place, or whether I should have remained in that vicinity until morning. It was only a few steps to the shore of Leigh Lake, where I heard a distant response from my wife in answer to my call. She was slowly fighting her way through a thick growth of lodge-pole pine toward the western side of the lake. As its waters extend well into the mountains, we followed instead the eastern shore, which was also without a trail for much of the way.

Gradually I learned my wife's experiences. After we parted at the glacier, she had descended by the bank of the stream, in order to be near water on account of the heat. Finding she was not thirsty, it occured to her that it would be easier to descend farther away from the torrent. As she climbed a little to one side, she rested for a moment behind a rock, but immediately heard the sound of a great avalanche which seemed to shake the mountains. A stream of enormous boulders came leaping past her down the gorge, grinding the rocks into fragments and filling the air with the roar of destruction. It was twenty minutes be-

fore the confusion had ceased and she felt safe to leave the shelter of the rock. Thinking that I might have been killed was naturally disturbing; but through all that afternoon and night, she had the deeper feeling of my safety. If it had occurred to me that she might be in danger, I should have hastened to return. As it was, my thoughts to her were those of peace and Divine protection. After the avalanche, my wife descended in search of our sleeping bags, but they could not be found. Thinking that she had missed their location, she climbed back and forth for some time on the slope of the mountain, but without result, for they had been swept away. She left in the evening, following animal trails where possible, and reached the deserted cabin about the same time that I stood on the summit of the mountain.

At last we arrived at the end of Leigh Lake where there was a private camp, and we lay down for a brief nap. With the exception of the few moments' rest which I had secured before daylight, I had continuous vigorous exercise for nearly thirty hours. My various ascents totaled about 7,000 vertical feet, and I had traversed many miles of difficult mountain slopes. Under ordinary conditions, Mt. Moran is not an unusual

climb for any competent mountaineer,—if he knows the route. We were soon journeying south for fifteen miles to Menor Ferry on the Snake River. Such an unusual succession of wild and unclimbed peaks and canyons would be difficult to find elsewhere in this country. From this point of view the Grand Teton is a gigantic rock peak of great height. On a naked gray cone to the south, a deep and narrow chimney springs from base to summit, looking as if an enormous rope had been thrown over it. Others are fantastically pinnacled and are enlivened with varied colors. Many are sharply pointed, offering interesting problems to the mountaineer. Although a very remarkable range, the Tetons have rarely been visited by the traveler. While Yellowstone Park has numerous mountains, none are of the interest and importance of the Tetons, which should be added as a fitting climax to its wonders.

At Menor Ferry we crossed the river and walked for several burning miles to the main highway, where we secured an auto for the long ride back to Moran that evening. Long will we remember the picturesque skyline of the Tetons, soft blue against the orange sky. Early the next morning we started on a day's ride to the northern en-

trance of Yellowstone Park. Rosy were the mountains in the morning glow, while peacefully the full moon lingered over Mount Moran.

Returning to Moran with Warren H. Loyster, of the National Park Service, we started from base camp Aug. 6, 1922, and ascended the eastern glacier and the Long Snow Tongue, which reaches almost to the western summit of Mount Moran. The snow lies deep, and it was necessary to cut and kick steps all the way. Where the Tongue divides we chose the left-hand couloir and at last reached the summit rocks. The view of rugged mountain peaks beneath us was particularly impressive. It was five o'clock, and it would have been very slow and difficult work to descend in safety over the hard snow, so we traversed the narrow ridge connecting the western and eastern summits. The ascent of this part of the mountain from its base is wholly a rock climb involving much more difficult and interesting work than the snow route to the western summit. Mr. Loyster noted the cairn I had erected on Aug. 11, 1919, photographed the can which I had left there, and read the enclosed record of my ascent. We estimated this eastern summit to be about 250 feet lower than the one we had just left. We removed our 1919 record, which was much yellowed, and left bottles on both summits containing the new record. It was eight o'clock when we started our descent, which was assisted in part by the moon. At several critical points I was able to recall my former route, but we varied it for a considerable distance. We descended a long succession of hazardous cliffs, which required the utmost care and constantly required the most strenuous exercise. Cliff work in semi-darkness is hardly to be recommended, even to the most venturesome. In the darkness that preceded daylight the cold was intense. We reached camp safely and descended to the lake after about thirty hours' continuous exercise, having made the first traverse of Mount Moran.

CHAPTER III

RAMBLES IN YELLOWSTONE AND GLACIER NATIONAL PARKS

Of foremost importance in the life of the nation are our national parks and monuments. Each one has distinctive and unrivaled features and many are becoming world-famous. In the last few years there has been a remarkable increase in the number of visitors to the better known parks and many people have seen a few of them; but it is unusual to find a traveler who is acquainted with all of them. Sooner or later we, as a nation, are destined to awaken to their supreme value and to a more active coöperation in their creation, development and protection. It has now been fifty years since the Yellowstone National Park was created in Wyoming and its natural wonders are probably more widely known than are those of other parks.

Most promising is the free nature guide service which has recently been established in several of our national parks. Both young and old are find-

ing that it opens for them a new understanding and love of nature. One of the essential elements of education is real acquaintance with God's creation, and for this book learning is never a substitute. Only sympathetic and joyous communion with flower and tree, with bird and animal, and with the eternal mountains can supply an infinite need of the soul. A true nature guide is always discovering life histories, and he encourages his companions to see and understand for themselves. He is a fascinating interpreter of the natural sciences, and there is immeasurable difference between his art and the out-of-date method of textbook and indoor instruction. Instead of having dry and uninteresting things forced upon one, against which the mind rebels, the spirit is awakened by the voice of living things, and it reaches out in every direction to learn the meaning of life. We look for the day when this wiser method of education will develop men and women who are alive to deeper realities and to fuller and more satisfying human relationships. There is crying need for leaders in our schools and colleges who will make possible these things for the young; and for adequate opportunities for teachers themselves to learn the art of assisting their pupils to develop,

rather than to repress their divinely creative impulses.

One of the important services that national parks are rendering to man is the preservation of animal life. Practically all our wild animals have been misjudged because we have hunted them with a gun. When they are afforded protection by law, as in the Yellowstone, they appear very differently to man and are found to be peaceable and sometimes almost inclined to be social. None of them attack human beings, unless they believe they are in danger. Removal of the fear of death by man causes as great a change in the animal, as does a true appreciation of the value of life in the man. Why should we not win the confidence and companionship of wild life, instead of destroying it for profit or pleasure? For the deepest reasons all killing for sport will eventually cease.

Scenically the most interesting approach to Yellowstone Park is from the east by way of Cody and the Canyon of the North Fork of the Shoshone. As the gorge narrows, its gray walls are tinged with pink and tower abruptly, forcing the road to climb through tunnels. A dam 328 feet in height has been built at the head of the canyon, forming a lake ten miles in length. As we go on

through the Shoshone Forest there are many eroded pinnacles of rock, the finest group being named "The Holy City." Through an opening high in the cliffs its towers and spires rise heavenward in impressive and satisfying harmony. After entering the park there is a fine forest of yellow pine, and beyond Sylvan Pass is a view of Yellowstone Lake with the Tetons looming majestically fifty miles away.

Turning to the north we reach the Grand Canyon of the Yellowstone. The view from Artists Point on the eastern rim is the most comprehensive and satisfying of all. Both walls of the canyon are seen to advantage, and the Great Fall which is about twice the height of Niagara occupies the center. For three miles below the fall the rhyolite rock of the canyon has been colored by the fumes of hot springs. The effect is like a painting in water colors: yellows predominate, with pinks and whites, and rarer touches of crimson. In no way is it comparable with the rich coloring of the Grand Canyon of the Colorado, but it has a unique delicacy that is a delight to all lovers of beauty. In the early morning I have watched its colors gradually awaken, until the sun turned backward the curtain of shadow into the

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GRAND CANYON OF THE YELLOWSTONE.

heart of the canyon. Little clouds of mist float upward from the fall and vapor rises from the hot springs along the edge of the river. Beneath the forest which peers over the rim, are cliffs of yellow and orange; across the canyon the upper wall is chalky white. Pines and spruces are scattered among the multitude of fretted and varicolored pinnacles which adorn the slopes; while the river is deep green and foamy white where there are rapids. Resting over all is the soft blue of the sky. Ospreys sail back and forth through the canyon, now and then alighting on some inaccessible pinnacle where their young are nesting. In the contemplation of a scene so vast and beautiful the soul demands appropriate silence that it may hear the music of nature. In former years I have found the canyon secluded from irreverent noise, but now no spot remains where one may escape the shrill exhaust whistles of automobiles. Both by day and by night their irritating sound crosses from either side. Some day we hope it may be possible to arrange for transportation in a manner more in keeping with the grandeur and peace of the canyon. Among many other points, one should visit Inspiration on the opposite rim. Its view is less symmetrical than that from Artists

Point, and it lacks the full view of the great fall, but the wild grandeur of the canyon is more apparent.

Descending the ravine near the lower fall at sunset, we reach the river. Clouds of rainbowed spray sweep out from the fall upon the slopes where the mosses gather, and then trickle down to the swift flowing stream. Looking up we see an osprey, laden with twigs for its nest, flying close to the glassy green brink of the fall. On one side the water plunges white and heavy, throwing itself outward upon a concealed rock; on the other it shoots downward in misty comets like soft silken floss. Following down the river until the walls become impassable, we find tiny hot water geysers with brown and green and white on their cones. The nearby crumbling rock ranges in color from white to carmine. Years ago I climbed from this point directly up the treacherous slope of the canyon to the rim, which is about 1,200 feet above, but the temptation to slip back was very strong. Looking up from the river at sunset, the cathedral crags are lit with joyous color. Peering into the depths of the canyon at night, it is devoid of color, lying ghostly white in the moonlight.

From the summit of Mt. Washburn, 10,000 feet

in height, which we reach in an auto, there is a comprehensive view of park-like forests and of many mountains on the horizon. The Yellowstone is a dying geyser field, which is slowly turning into hot springs and pools of great beauty. After visiting the most interesting formations and geysers of the park, we leave Old Faithful by auto for Moran, Wyoming, which is about 70 miles distant to the south. Passing through a heavily wooded country of high elevation, we look down on Shoshone Lake and have a distant view of the Teton Range toward which we are traveling. At the west thumb of Yellowstone Lake we pause to view the Paint Pots, with their bubbling mixture resembling rose-colored calcimine, and a little geyser playing on the very edge of the lake. Turning south the road follows the shore of Lewis Lake, and then along Lewis River past colorful meadows and sparkling streams to the valley of the crooked Snake. Usually there are near glimpses of deer, of elk, and of moose. Finally we look down on the shores of Jackson Lake, which has been dammed at its southern outlet to control the waters of the Snake River for the benefit of Idaho lands. In summer the water is low in the lake and for miles the dead trees create a gloomy land-

scape. Along its forested shores near the mountains there is a dense and muddy tangle of utter forest devastation. In turning a lake into a reservoir of larger area, the standing trees should always be cut. Alas, the beauty of Jackson Lake has been ruined for years to come. Once a paradise for countless water fowl, its shores are now deserted by the birds and animals in disgust. From the slopes of the mountains one looks down upon the ruined areas where the water has found its way inland; and, in traveling across country, one is unhappily confronted by these dismal swamps with their foul odor of decay. Likewise the exquisite charm of Leigh and Jenny Lakes, which nestle at the feet of the mountains farther to the south, is threatened. These are among the most precious of America's gems, but few lovers of beauty have seen them.

Recently I again visited this country early in the season, approaching it from the southwest by way of Salt Lake City, Ashton and Victor. Foothills guard the range on the west, but from Tetonia the Grand Teton group is very impressive, looming mystically high in snowy grandeur against the white cloud masses of the sky. To the north, Mount Moran rises in massive domination. From

Victor I rode by auto to Moran, climbing Teton Pass near the southern end of the range amid Alpine flower fields. Turning to the north, the road then skirts the eastern base of the mountains, affording wonderfully effective views of their jagged, snowy summits against the gold and rose of the sunset sky. After a night at Moran, I continued along the range, crossing it near its northern end amid flowery meadows, and finally reached the railway at Ashton.

GLACIER PARK

We enter Glacier Park, Montana, in the usual way, traveling north as quickly as possible toward the finest mountain scenery. From Lake McDermott we climb the wall of Swiftcurrent Pass in search of Alpine flowers, and continue upward to the summit of Swiftcurrent Peak, where there is a comprehensive view of this portion of the park. In ages past internal pressure has forced the very ancient and rarely exposed Algonkian strata to the summit of these mountains; and the landscape is enlivened with buff and gray limestone, and green and dark-red shale. From the rim of the Grand Canyon of the Colorado in Arizona, one may look

down for thousands of feet upon the Algonkian, but here its position is reversed. Down the valley toward the plains, there is a chain of blue lakes, over which the high ridges glow with soft pink in the distant haze. In other directions there are a multitude of peaks and valleys with many small glaciers, while far to the north is Mt. Cleveland, 10,438 feet, the highest in the park. From Granite Park we visit the "Garden Wall," which tops the cirque of Grinnell Glacier. Along the way are colorful strata, ranging from light blue-green to purplish-red; while, here and there, touches of bright yellow are added by lichens. As we peer down upon the scarred and dirty surface of the glacier, over which the shadow of the serrated peaks is traveling, we hear the roar of the stream on its way to lakes Grinnell and Josephine; and through the smoke of forest fires, the slope of Mt. Allen glows deep red and purple in the sunlight. Many enthusiastic writers have overcolored their descriptions of this scenery, conveying the impression that the landscape is like the Grand Canyon; but this is not the case, for color is distributed far more sparingly on these mountains and depends to a larger degree on the character of the light for its effects. From the chalet at evening,

we gaze into the north toward the highest mountains of the park and the distant valley of Waterton Lake, which leads into Canada. Twilight has filled the depths beneath us, while beyond are two long ridges slumbering in blue haze. Piercing the northern horizon is a mountain, gray like the clouds above it. As the sun descends it surrounds the peak with deep crimson light, finally turning it into a volcano with crater of molten fire. Elsewhere, clouds of gold in the light-blue sky blush rosy in the afterglow.

Shouldering our packs at dawn, we start on the long trail for Waterton Lake. At first there is a steep descent of 2,500 feet to Mineral Creek through the towering pine, spruce, larch and fir, which clothe the western slope of the range. Some of them are fantastically and fatally draped with hanging moss. There are glimpses of a blackened hanging glacier, of half-awakened little waterfalls on the Livingston Range, and of distant peaks flushed with the dawn. We follow the creek for miles, beneath the cliffs of Flattop Mountain, to the divide which separates the waters of the great central valley of the park. There are carpets of ferns and thickets of huckleberries and red thimbleberries, with now and then the thorny leaves

and brilliant berries of the Devil's Club. Beyond the falls of Kipp Creek we ascend a high valley, where all the trees have been broken off by a great wind. Nestling in every murmuring creek bed is a bower of Alpine flowers, pink and white and yellow, the home of countless happy butterflies and bees. Climbing the steep slope of the divide we round the walls of Mt. Kipp, and admire the imposing architecture of Cathedral Peak. Deer are near at hand, bounding across the mountain meadows as we approach. It is August and the first full glory of the flower fields has passed, but in these high Alpine gardens, buttercups and sweet-scented adder tongue are blooming close to the snowbanks. At last we overlook the course of the Little Kootenay, where ridge upon ridge and peak after peak crowd one upon another. Then the trail plunges into Waterton Valley, with delicious wild raspberries bordering the way. The rocky bed of the creek is deep red and green, strikingly contrasting with the foaming water, and we are impressed with the unusually sharp and curious pinnacles of the Citadel Peaks. After several miles of blood-thirsty mosquitoes, whose ability I have not seen equaled this side of Alaska, we decide to spend the night in the shelter of an aban-

A. J. Baker

MOUNTAINS OF GLACIER PARK, MONTANA, FROM WATERTON LAKE.

doned cabin. We have traveled about twenty mountain miles and are not far from the head of Waterton Lake. In the morning there is a rugged view up Olson Creek toward Brown Pass and the famous Bowman and Kintla country. To the left is Porcupine Ridge, and towering in the center, is the imposing Sentinel. We had thought to visit this region, but the rapidly increasing smoke from forest fires hides the mountains from our view; and, after waiting for some hours on the shore of the lake, we continue for four miles to the ranger's cabin on the left bank. After a rapid sail of five miles in a canoe, we reach the hamlet of Waterton Lakes in Canada. Here is a beautiful view in clear weather of the high mountains which cluster around the head of the lake. It is forty miles by auto to Pincher on the Canadian Pacific, which we reach by night.

CHAPTER IV

ON THE OREGON COAST

PORTLAND in June is a revelation to many. From its heights embowered in roses, one may view the white peaks of Mounts Hood, Jefferson, St. Helens, Adams, and Rainier, resplendent in the sunshine, rosy in the alpenglow, or veiled in mists as they loom ethereal in the twilight. From the heart of the city to the rugged coast of Oregon is but four and a half hours by train along the Willamette and Columbia Rivers. For miles the railway follows a trestle in the river in front of ancient Astoria, which clings to its steep hills. Living in houseboats on the bay are fishermen, whose nets hang in long lines on the wharves. Hundreds of sea gulls congregate on the floating logs, for salmon and lumber are still the leading industries. In spring the lower Columbia country wears a yellow robe of Scotch broom, brought here in the early days by the Hudsons Bay Company: in the fall its cranberry bogs are colorful as well as profitable.

Where the railroad ends at Seaside, we continue south by auto through a forest that will soon be only a memory on account of ruinous lumbering. Spruce forty feet in circumference offer too great a commercial temptation to the present generation. Hundreds of years ago a fallen log seems to have offered the most favorable opportunity for the growth of a seedling. As the new tree grew, the old one rotted away, with the result that a cave remains directly beneath the trunk of many a giant. Inquisitive black bear and deer are occasionally seen from the road.

As we near the beach at twilight, high white sand dunes meet us among the trees, while the sunset sky flames through the evergreens. Climbing the hills in the dusk, we reach a flower-hidden bungalow overlooking the sea. The orange moon hangs low upon the water and the purple ridges gather protectingly on either hand. Off shore is the intermittent gleam of Tillamook light and at our feet we hear the ocean's dreamy voice, while the mystic beauty of the night enfolds us.

From the bold heights of Tillamook Head to the distant hills of Neah-kah-nie, and beyond to Cape Mears on the south, there are over thirty miles of rugged coast unsurpassed in America.

Heavily forested hills approaching 2,000 feet, and gradually lowering to steep bluffs at the water's edge, reach into the sea in headlands and capes with outlying rocks, which are fantastically arched and alcoved. Over these the waves rise grandly in mountains of white surf. Seals and sea lions play in the swells or sun themselves on the rocks, and whales have spouted off the coast since Lewis and Clark observed them here. Appropriately this spot has been named Ecola, the Indian for whale.

Here are a multitude of tiny coves and beaches, of caves and of rocky pools, rich with the colorful gardens of the Pacific. They are lined with barnacles and mussels, and are fringed with waving seaweeds, through which the little fishes glide. Sea urchins, star fishes, anemones and many curious forms of life tarry after each tide; and an innumerable family of birds turn the orange and brown of the seaward ledges to gray and white, as they alight with noisy chatter. There are the heron gulls, murries, cormorants, sea parrots and pigeons, and in the foam of the wave is the fleet sand piper. Here are the curious live rock oysters which inhabit the little cells in wave worn sand-

R. L. Glisan

OREGON COAST FROM TILLAMOOK HEAD TO NEAH-KAH-NIE.

stone, turning and enlarging their prisons as they grow, until freed by death.

In storms the great slow-curving waves of blue and green and white plunge gloriously, filling the coves with mad rushes of swirling water, and shooting far up the cliffs in sun-illumined spray. Rising from the sea a deceptive mile off Tillamook Head is a dangerous rock which threatens coastwise traffic between Portland and San Francisco. Years ago a German bark was driven on this coast at night, and the sailors perished in a high-walled cove, from which they were unable to climb. This induced the construction of Tillamook lighthouse on this isolated rock,—a more difficult problem than any, save Minots Ledge light off the Massachusetts Coast. When the builders had landed, a storm arose which marooned them for ten days, while they were lashed to the rock to prevent being swept into the sea. On completion of the lighthouse, the sea seemed to show its disapproval by hurling a five-hundred-pound rock 130 feet in air into the lantern, where it fell through all the floors to the concrete base. Few have visited the light for pleasure, for the tender must send a boat close to the cliffs, where you may spring for a basket

which is lowered from the ninety-foot arm of a crane. Then you are swung upward while the boat falls beneath you in the trough of the wave.

Long before the white man saw this coast, it was the feasting ground of Indians, whose shell heaps are found with the bones of deer which were used to open the clams. Seated in his canoe with his weapons, as at burial, an Indian Chief was found where the cliff had washed away. Left in its original wildness, with only here and there a scanty trail which must frequently be cut out, this isolated coast is still a paradise for the nature lover. You may wind in and out among the giant spruce and hemlock, often coming to the very edge of the cliff, where an unsuspected trail tumbles into a cove; or you may wander through fern gardens, whose fronds wave round your head, to the cool shade of a hidden pond where lilies bloom and deer bound lightly away. There are orange-pink and purple huckleberries, salmon berries, and thickets of Oregon grape and salal twelve feet high that defy penetration, save on hands and knees. Working up the steep slopes of Bald Mountain through this tangle will insure your quiet enjoyment of the remarkable view from its wind-swept

Surf on the Oregon Coast. Tillamook Light in Distance.

R. L. Glisan

Looking Toward Japan.

R. L. Glisan

summit, 600 feet above the sea. It is 138 miles by auto back to Portland, city of roses, smiling beneath its surrounding mountains of eternal snow.

CHAPTER V

MOUNT RAINIER, OUR GREATEST SNOW PEAK

WHO can view the great white cone of Mt. Rainier, 14,408 feet in height, from Seattle or Tacoma without longing for a closer acquaintance with this giant among our mountains? One may journey by train from Tacoma to Ashford and then by auto to Paradise Inn on the southern slope of Rainier, or he may go by auto all the way from Seattle and Tacoma. Only five per cent of the Mount Rainier National Park, comprising eighteen square miles, is usually visited by the public, who see only the southern side of the peak. Recently I went over the route of a new road, which has since been completed, through the forest to the northeastern entrance of the park; but it is still ten miles by trail up the White River to Summerland, a natural park on the northeastern slope of Rainier.

On the northwestern side of the mountain a road is being built from Fairfax up the Carbon River, which it is hoped may be extended to an elevation

Asahel Curtis

MOUNT RAINIER FROM EAGLE PEAK, TATOOSH RANGE.

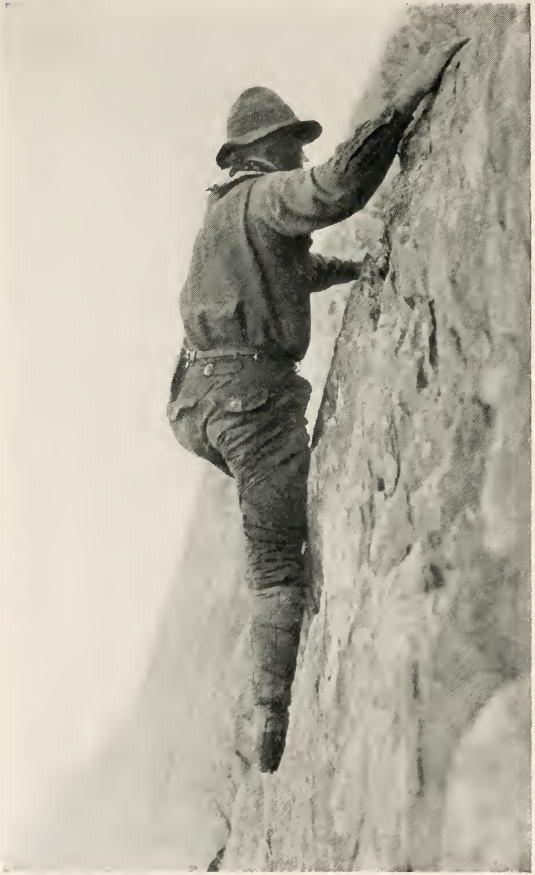
of about 8,000 feet overlooking the Carbon Glacier and the great Willis Wall. This seldom-visited northern side of Rainier is perhaps the wildest and most rugged, having wonderful parks and viewpoints such as Grand Park and the view from the Sluiskin Mountains. Giant avalanches may be seen falling from the 300-foot crown of snow above the Willis Wall for over 3,500 feet to the glacier. On the northwest Spray Park delights the eye; on the west Klapatche Park with the Puyallup Glacier is exceedingly wild and craggy. Here are unequaled fields of avalanche lilies blooming close to lingering snowbanks in midsummer. For a camping trip there is nothing better than a visit to these western and northern parks, but the trail should be relocated to give finer views on the way. When the Carbon River road is finished, a hotel will be built on the northern side of Rainier and no visit to the park will be complete that does not include at least three sides of the mountain. It is one hundred miles by trail around Mount Rainier along the ridges, over snowfields and glaciers, and through a succession of natural parks thickly carpeted with wild flowers. A chain of cabins, ten or twelve miles apart, should be built for the convenience of the walker, who could thus find

food and shelter at frequent intervals; while a pack train would carry his dunnage, leaving him free to enjoy the wonders of the trail.

Black devastation from ruinous lumbering and fire has irretrievably injured miles of glorious forest along the highway approaching the park. Awakening at last to the scenic value of these giant Douglas fir, western hemlock and cedar, a Natural Parks Association is preserving strips of timber along the highways by exchange and purchase. Within the park, these magnificent trees cluster about one, rising from 250 to 275 feet, with diameters of 8 or 10 feet, and life histories already rich with more than a thousand years.

In accordance with an enlightened policy in all our National Parks, automobiles may now climb to Paradise Inn at 5,557 feet elevation, with mile after mile of striking mountain scenery to shorten the way. Often the snow banks remain on the roadway into mid-July, while above them tower the rugged peaks of the Tatoosh Range. Over the forest the glistening cone of Rainier grows in power and grandeur until even the heart of a hardened traveler is awakened.

With horses and pack train I recently visited the southeastern and northeastern sides of Rainier.



R. L. Glisan

A MEAN SPOT ON MT. MEANY, OLYMPIC MOUNTAINS.

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CREVASSE ABOVE GIBRALTAR ON RAINIER.

Starting from Paradise Inn we descended to Narada Fall where the river plunges with rainbowed spray into the canyon below. Turning to the left our trail wandered upward through the forest to Reflection Lakes where we camped. I was soon climbing Pinnacle Peak, 6,564 feet, in the Tatoosh Range to view the alpenglow on Rainier. Seen from its own slopes the mountain is much foreshortened, and hardly reveals the many miles of rock and snow which the climber must ascend to reach its summit; but from the vantage point of Pinnacle Peak, Rainier looms in grandeur. At twilight the purple valley is gradually veiled by fleecy clouds drifting in from the west, while the snowy peak is suffused with rose pink which lingers into the night. As I traversed the little glacier and climbed the crags of Pinnacle, the clouds across the valley were swirling around the ice fall of the Nisqually, and the wind was whirling up a curtain of cloud against my peak. I was tempted to seek the shelter of the matted white bark pine on the summit, but it was too late to linger, so I felt my way down the uncertain cliffs in the dark.

In the morning we descended into Stevens Canyon and climbed again to the deep and narrow

canyon of the Cowlitz, which is spanned by a bridge. From its nest amid a hanging garden of maiden hair fern, we watched an ousel diving into the swirling waters. Downward for miles we rode through a virgin forest of white fir, giant hemlock and cypress, draped here and there with goat's-beard moss. Just outside the southeastern entrance of the park we came to Ohanapecosh Hot Springs, where we camped in a grove of hemlocks about 250 feet in height. As yet the springs have been little visited, but they offer varying degrees of temperature to the venturesome, and a ladder has been placed in the most tempting one. Few, however, hasten beyond the first steps, for the water is 120 degrees warm.

Next day we followed an ancient Indian trail up the steep Cowlitz Ridge, enjoying new views of the mountain and a multitude of unfamiliar valleys. In a few miles we passed from the flowers of mid-summer to those of early spring. Such fields of purple aster and scarlet paint brush, strewn with the tall seed pods of the anemone; of wild heliotrope and of giant hellebore that waved above the heads of our horses! Phlox and lupine, wild carrot and basket grass mingled with dozens of flowers whose names were unknown to us. Lux-

Indian
Basket Grass.

Asahel Curtis

Avalanche
Lilies,
Klapatche
Park,
Mount
Rainier.

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uriant carpets of pink, white and yellow heather climb high upon the ridges where the twisted trees lie low; and all the flowers are of shorter stem but of more brilliant hue. Above timber line the pink petals of the moss campion nestle on their soft green beds. At night we lay in our sleeping bags amid the fringed gentians and heather of Ohanapecosh Park.

Over the barren slopes of the pass and across the upper snow fields of the Fryingpan Glacier, we led our horses to the topmost ridge, with its commanding view of the northeastern face of Rainier. Little Tahoma with its difficult cliffs is prominent on the left, and the inhospitable rocks of Steamboat Prow cleave the Emmons and Winthrop glaciers on the right, affording a cheerless camp for those who climb the mountain from the north. From the fir-bordered gential meadow of Summerland, we silently watched the sunset, while the great shadow of Mount Rainier reached high upon the smoky sky. Hidden among the pines, a male grouse hooted plaintively for its mate.

At Paradise Inn there are Swiss guides who will take one in safety to the summit of Rainier. Even on the fairest day the climb is somewhat of an endurance test, but under storm conditions it may

be exceedingly dangerous. Years ago I wandered up above Gibraltar to 12,600 feet with ordinary shoes and clothing, and without alpenstock or companions. A party was searching the summit snows for two men from Boston, who had been lost in a storm. Their equipment was found near the crater rim and it is supposed that they were blown downward into some deep crevasse on the White River Glacier.

In 1914 I returned with my sleeping bag to complete the ascent, only to find Paradise Valley thickly veiled in fog and a storm upon the mountain. Starting up the long slopes, I soon passed the last wind-swept hemlocks cowering beneath the gale. Unable to see more than a few feet, and sinking deep at every step into the soft snow, I pressed on to Camp Muir which then consisted of only a few stones on which one might lie, while a few others partially broke the force of the wind. Slowly I crawled upward along the Cowlitz Cleaver, crouching beneath its volcanic cliffs to escape the continuous wind which easily exceeded 100 miles an hour. At Gibraltar I had intended to spend the night awaiting a change of weather, but nowhere was there room to lie in safety. Against the wind from the Nisqually Glacier, I could not

© *Norman Huber*

MOUNT RAINIER IN STORM.

stand for an instant, while frequent gusts, sweeping upward from the Cowlitz Glacier, attacked my sleeping bag with sinister intent. Rocks were being unceremoniously lifted off the cleaver and hurled into the abyss, and I was finally persuaded to descend for 2,000 feet in the darkness to Camp Muir. Here with the stars for my companions I held the fort. All night the winds were never ceasing in their loud complaint. Beneath me an illimitable sea of thick clouds seemed to support the summit cones of distant volcanic peaks, which peered forth specter-like above it. The early dawn lit up a mighty battle of the clouds, the returning armies of the night contesting with those still rolling in from the west. Wave after wave sent towers of foam into the sky, while floating upon this ocean of mist were the silvery cones of Adams, St. Helens and Hood. Again I mounted upward toward the gleaming summit snowfields, but alas! I saw a fleecy cloud fly down across them with a speed no mortal might defy. Reluctantly I hastened downward and returned to Tacoma where a backward glance revealed the mountain innocent and rosy-hued!

Returning again to Rainier, I spent the night on the snow at Camp Muir, and, on June 16, 1915, I

climbed alone with my trusted ice-axe to the summit crater. After a little, a guide with two people arrived from Paradise Valley; but an approaching storm made it impossible to stand and threatened to sweep us down the glacier. Finding that the clouds were closing in, and realizing that the mountain is no abiding place in a storm, I rapidly descended, helping the party through the dangers of the Gibraltar ice couloir.

© *Winter Photo Co.*

CLIMBING MOUNT BAKER, WASHINGTON.

R. L. Glisan

CURIOSITY! MOUNT BAKER.

CHAPTER VI

CLIMBS IN THE CANADIAN ROCKIES

To the traveler familiar with the mountain ranges of the continent, the Rockies and the Selkirks of Canada have an especial charm. While not as high as the Rockies of Colorado or the Sierra Nevada of California, they are far more Alpine in their scenery, abounding in immense glaciers and snow fields, and are exceedingly rugged in appearance. So weathered are they that the rotten rock of the main range often affords but insecure holds for the climber, and extreme caution is necessary with a party to avoid the danger of falling stones. Here is still a paradise for the explorer that is marred only by the far too brief summers, and by seasons in which many high ascents are prevented by continuous storms. However, one may find among these snow-clad mountains, glaciers, waterfalls and lakes one of the most delightful regions on the continent, and one which will be increasingly visited as chalets and huts are provided for the tourist and the mountaineer.

Since the opening of these mountains by the railways, many from this country have annually spent their vacations in western Canada, and I have myself found irresistible the call to shoulder sleeping bag and provisions, and, with ice-axe in hand, to seek new peaks and unexplored country. Sometimes I have roamed alone over the mountains, or again with Swiss guides or fellow club members. Important in the development of this region is the work of the Alpine Club of Canada. Its club house is located on the slope of Sulphur Mountain at Banff, and its outings are held at various points in the mountains convenient for climbing. Around its campfire often gather those who are to penetrate unexplored territory, or to make a first ascent of some summit of the range. By its outings in the coast range, the British Columbia Mountaineering Club of Vancouver is making known the rugged Garibaldi district and other regions.

One of the most interesting trips that may be taken from Banff is to Mt. Assiniboine, a giant peak rising Matterhorn-like far to the south. At the clubhouse I had read the *Alpine Journal* while it rained and snowed almost continuously for a week. Then of a glorious morning, when all the peaks glistened with new snow, we started for the

Equipment for Serious Work, Canadian Rockies.

Byron Harmon

Mazama Camp Fire, North Side of Mount Rainier.

Winter Photo Co.

conquest of new summits in the Assiniboine district. We had chosen to follow Healy Creek for the beauty of its Alpine flower fields, but we found the creeks overflowing their banks and all the higher meadows deep in snow. After camping that night on a snow field, we pushed onward the next morning over the divide, finally coming to its second crossing, where we found the snow too soft and deep for the horses. Retracing our steps, we followed what seemed to us the roof of the world for miles through ice and snow to the canyon of Simpson Creek. How our horses came down its precipitous wall without the whole outfit's descending on our heads is still a mystery. With no trail, amid ice and snow and slippery rocks, none but animals born to hardship could survive. After several miles in the canyon, we camped at the forks, where an encompassing host of mosquitoes awaited us.

The following day will long be remembered for its miles of fallen timber over which we jumped the horses, or had to cut our way with axes; for its beautiful upland meadows, and its long valley into which a whole mountaintop had tumbled in great confusion. In the afternoon our eyes were gladdened by a glorious vision of the Assiniboine

range rising far into the radiant clouds and mingling its snows with their purity. We camped near the shore of Lake Magog at the base of Mt. Assiniboine, 11,870 feet. Here we waited day after day for the snows to melt from its precipitous cliffs; but we lingered in vain, for the constant storms and the roar of its avalanches warned us that no climber was welcome.

Meanwhile we explored the adjacent regions. I traversed the rocky slopes south of Sunburst Valley, looking down on its enchanting little lakes, and finally came to a castellated amphitheater of avalanching peaks, over whose head wall there peered the vast pyramid of Mount Assiniboine. Crossing Wonder Pass to the eastern side of the range, we found this side of Assiniboine is very different in appearance from its symmetrical northeastern face. At its base a deep valley cradles Lakes Marvel, Terrapin and Gloria, milky blue in hue from the water of a glacier that tumbles down the pass between Mts. Eon and Aye. To the south a hanging valley leads to unclimbed peaks. Travel was slow and difficult through the fallen timber, and we finally traversed Mount Terrapin, finding the snow too soft and dangerous for more serious work. At last we returned to Banff by way of

Byron Harmon

MOUNT ASSINIBOINE, CANADIAN ROCKIES, 11,870 FEET.

Howard Palmer

MOUNT SIR DONALD, SELKIRK RANGE, 10,808 FEET.

the Spray Lakes, and Canmore, forcing our way through the storm.

THE TRAGEDY ON MOUNT EON

Years ago we had looked longingly at the cliffs of Mount Eon, 10,860 feet, but they remained unclimbed until the summer of 1921 when Dr. W. E. Stone, President of Purdue University, conquered the mountain, paying for it with his life. Dr. Stone was a competent and careful climber, being a member of the American and Canadian Alpine Clubs. He left Assiniboine Camp with Mrs. Stone on July 15, taking sleeping bags and provisions for four days, and remarking that their friends could look them up if they failed to return in that time. Crossing Wonder Pass, they camped near the summit of Marvel Pass, where they spent the following day. On the 17th they commenced their climb of Eon, traversing its ledges and ascending its southeast arête. There is much loose rock on the mountain and one is in frequent danger from falling stones, as well as from insecure foot-holds. After climbing numerous broken ledges and short couloirs they came to the base of a final forty-foot chimney which Dr. Stone

ascended alone. Reaching the limit of the rope, he unroped and climbed out of the chimney's dangerously sloping top. Then he called back to his wife that it must be the summit, for he could "see nothing higher." Soon after a large rock fell past Mrs. Stone, followed by her husband who was firmly holding his ice-axe. Not knowing that he had unroped, she braced herself for the expected jerk, which was likely to pull her off the cliff. Dr. Stone fell for about sixty feet and then rolled over the ledges for eight hundred feet.

It was six-thirty in the evening, and as it soon became too dark for Mrs. Stone to attempt to descend, she spent the chill night at 10,800 feet. Early on the 18th she started downward in the direction which she thought her husband had fallen, doubtless passing his body. On the 19th she descended further, but missed the route by which she had climbed the peak, and was unable to continue until she fastened the rope and lowered herself down a chimney. At last she had to drop from the rope about ten feet to a little ledge, from which she hoped to reach the valley. Alas, she found it bordered by precipitous cliffs impossible to descend, and she was unable to regain the rope above. For five days and nights Mrs. Stone re-

H. Pollard

CLIMBERS ON MT. NAISET.

H. Pollard

ROCK WORK ON MT. SCHAFFER.

mained on this narrow ledge at about 7,500 feet. She was without food, but was able with the use of moss to secure enough water to sustain life. But lightly clad, in stormy weather, and often in intense cold, she was conscious neither of temperature nor of time. At intervals she called, believing that rescuers would appear.

At Assiniboine camp the full seriousness of the situation was not realized until the 20th. On the 21st a packer started for Banff to secure assistance, making the entire trip of 45 miles that day. Lake Louise was telephoned to send a Swiss guide, and Rudolph Aemmer who had just ascended Pinnacle Peak responded, reaching Banff at 1.30 A.M. The next day he arrived at Assiniboine camp and on the 23rd reached the Stone camp at Marvel Pass. Although members of the Alpine Club of Canada and men who were constructing a trail over Wonder Pass had visited this camp, they had not found the missing climbers.

On the 24th Rudolph Aemmer and his companion had reached 7,800 feet on the southern face of Eon, when a cry was heard. A shot was fired, and Mrs. Stone was discovered on a ledge 300 feet below and some little distance away. With the aid of his rope Aemmer reached the ledge and was

recognized by Mrs. Stone, who said her husband had fallen and was dead. Assisted by the rope she was raised to the ledge above, where Aemmer made a sling and secured her to his back. He carried her along dangerous ledges for a mile and then descended the cliffs to timber line, where they camped for the night. This was a feat which few could have accomplished in safety. Mrs. Stone had been on the mountain for eight days and survived, an unparalleled experience of its kind! For two days more the party battled with the difficulties of travel, being exposed to storms by day and by night, and having little food until they reached Trail Center Camp on the 29th.

For the recovery of Dr. Stone's body a new party was formed, including the guides, Rudolph Aemmer, Edward Feuz and Conrad Kain. It was discovered at about 10,000 feet, after which the party ascended the peak and built a cairn on which they placed Dr. Stone's ice-axe, which they had recovered on the ascent. It was apparent to them that he had stood on the summit, and that on returning to the chimney, he had stepped upon a loose slab at the edge, which had carried him down. With ropes the body was brought down the mountain amid great difficulties. The first night the party

Mts. Eon, 10,860 feet, and Aye, 10,640 feet above Lakes Marvel and Gloria.

Byron Harmon

Lake Louise, with Mts. Lefroy and Victoria.

Byron Harmon

had to bivouac at 9,000 feet. It was bitterly cold, and, in the morning, the icy rocks made travel doubly dangerous. As the sun melted the ice, the rescuers were bombarded with falling stones. Another day completed the descent, but several were required to return to Banff.

IN THE VICINITY OF LAKE LOUISE

No matter how often one may visit Lake Louise its beauty and charm are perpetually satisfying. The brilliant poppy-covered slopes of orange, white and yellow are an effective setting for the ever-changing greens and blues of the lake; while the avalanches and the alpenglow on Mt. Victoria linger long in memory. Within easy distance by trail is flower-strewn Paradise Valley, filled with the music of waterfalls and surrounded by glacier-hung peaks of unusual grandeur. No camp site can easily be more beautiful. The most interesting approach to the valley is over the Saddle with its splendid outlook on Mt. Temple, 11,626 feet. On the way one may climb Fairview, which is only 9,000 feet in height, but its view of the snowfields and glaciers surrounding Lake Louise is exceptionally fine.

Strolling up Paradise Valley we climbed the Giant Steps, over which the glacial stream foams and tumbles, and found our way through beautiful groves of Lyell's larch to the steep moraine of the Horseshoe Glacier. Watching for concealed crevasses, we crossed its surface to the nearly perpendicular 6,000-foot wall of Mt. Hungabee. Near at hand is the Mitre, 9,470 feet, a lively climb up cliffs of disintegrated rock, requiring frequent testing of hand- and foot-holds. At a critical point my companion on the rope lost his footing and for an instant hung only by one hand. If he had fallen I might have followed, as we were climbing too near each other. Now and then we had thrilling glimpses of the abyss into which we tumbled stones, the sound of whose fall failed to reach our ears. From the narrow summit there was a fascinating view of the surrounding valleys and nearby peaks; while close at hand the avalanches thundered off the ridgepole of Mt. Lefroy into the depths below.

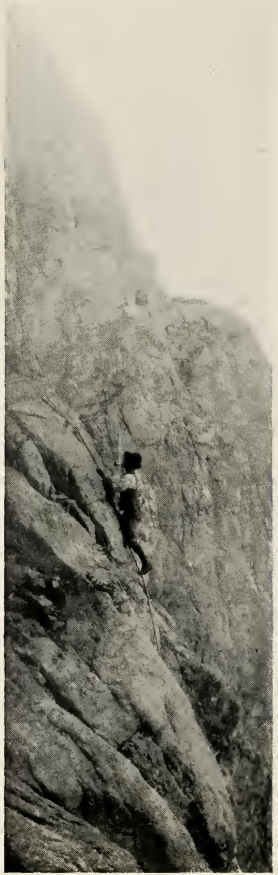
On the eastern side of Paradise Valley, Pinnacle Peak, 10,062 feet, towers with sheer forbidding cliffs which were long unclimbed. Starting from our camp, two miles from the mountain, at 6.35 A.M., my guide set a rapid pace, which we

F. N. Waterman

CLIFFS OF THE MITRE.

R. L. Glisan

PINNACLE PEAK, 10,062 FEET.



F. N. Waterman

A CHIMNEY ON PINNACLE.

kept up over the moraines and in ascending the steep ridge leading to the citadel of the peak. Then we worked our way around the base of its perpendicular cliffs to the face overlooking the Valley of the Ten Peaks, where we roped and commenced the real climb. There are two chimneys of about 75 and 100 feet in length which lead up the cliffs, and ropes have been hung at these points to assist the climber. We went up hand over hand with little pause for there were meager foot-holds. Rocks loosened by the storms and frosts start with the melting snow from the summit and volley down these gullies and chimneys with deadly speed. One may often hear but seldom see them go by. We reached the summit at 9.10 A.M., finding a splendid view of distant peaks; but we hastened our descent to avoid the danger of starting rocks that might fall on a party which was following us. Once we held our breath as we watched a rock gather speed and disappear from view. All was silent until the shout of my guide brought a warm reply in Swiss from the guide below. After stopping for a photograph we speeded down the mountain, reaching camp at 11.15 A.M.

From Lake Louise one may motor to the beau-

tiful Valley of the Ten Peaks, but it is far more interesting to enter it from Paradise Valley, by way of Sentinel Pass, 8,556 feet. As we ascend between Mts. Temple and Pinnacle, we frequently look back on the valley below and up at the colorful spires of rock. As we descend through Larch Valley, there is an inspiring view through the golden larches of the pure snows of Mt. Fay, 10,612 feet, guardian of the Valley of the Ten Peaks. We stroll along the shore of Moraine Lake, which softly mirrors a galaxy of mountain giants, and climb through flower fields to the Wenkchemna Glacier. Here are the inhospitable cliffs of Mt. Deltaform, 11,225 feet, offering the perils of loose rock and falling stones to the climber. We retrace our steps to Consolation Valley, at whose entrance is the Tower of Babel. Beyond its little lakes the avalanches are thundering down the cliffs of Mts. Bident and Quadra, and we look back at the castellated heights of Temple rising into the perfect blue of the sky.

One of the easiest and most satisfying trips which a mountaineer may enjoy is that from Hector, a flag station west of Lake Louise, where a nine-mile trail ascends Cataract Brook to Lake O'Hara. Here the Alpine Club of Canada de-

H. Pollard

LAKE O'HARA AND MOUNT LEFROY.

lights to camp, or it sometimes stops on the way in Cataract Valley and uses Cathedral Peak as a qualifying climb for its new members. High above this camp on the east is a pinnacle called the Watch Tower. Although several of us have ascended to view its cliffs at close range, no one has discovered a route to the summit. O'Hara is one of the most perfect lakes in the mountains. It is fringed with trees and surrounded with snow-capped mountains which mirror their snows on its surface, while a singing waterfall foams into its tranquil surface. We climb over the shoulder of Mt. Schaffer to Lake McArthur, which is fed by a glacier from Mt. Biddle at its head, and find a frozen silence, antarctic even in mid-July.

From Lake O'Hara we commence a traverse of five glacial passes and valleys of unusual interest. Ascending to tiny Lake Oesa, cradled in the lap of the mountains, we find a steep snow climb of two thousand feet to the summit of Abbott Pass, 9,588 feet. We hasten down its northern slope between Mts. Victoria and Lefroy, for hanging glaciers ever threaten to sweep the traveler through this icy Death Trap into crevasses on the Victoria Glacier. Far below us gleaming in deepest green, is the queen of mountain lakes, Louise. We round

the frowning walls of Mt. Lefroy, and zigzag up the long, steep slope of Mitre Col in silence, for the snow is soft and deep. As we skirt its yawning bergschrund, I see an avalanche, born like a snowball near the crest of the col, widen and deepen and gather speed until it claims the last man on the rope. He steps backward, hoping to let it pass between him and the next man on the rope, but it sweeps him downward while we jab our axes into the slope. The rope holds and we pull him up safe, but whiter than before. Down into Paradise Valley I glissade on a steep icy slope, using my ice-axe as a brake. It is easy, as leader, to keep my footing, but those who follow on the rope are soon rolling and tumbling. We reach the Giant Steps and cross the valley to camp. Above us, towering sheer for many thousand feet, is the matchless precipice of Hungabee, 11,447 feet, and all night long our startled ears respond to the roar and boom of its vast avalanches. Early in the day we cross Wasatch Pass to the head of the Valley of the Ten Peaks. Climbing over Wenkchemna Glacier and Pass we descend into Prospectors Valley, where a curiously isolated tower of rock points the way to Opabin Pass and a chain of little lakes leading back to O'Hara.

Byron Harmon

NEARING THE SUMMIT OF MT. HUBER.

Byron Harmon

ROUNDING THE BERGSCHRUND ON HUBER.

CLIMBS FROM THE YOHO VALLEY

One of the most interesting trips for an ordinary pedestrian is the circuit of the Yoho Valley from Field by way of Burgess Pass. As we ascend through the forest, enchanting glimpses of Mounts Stephen, Cathedral and Vaux refresh the eye. Here and there we see the full height of Mt. Stephen, springing 6,400 feet from the treacherous waters of the Kicking Horse to its summit snows. Crossing rich flower slopes glowing with yellow, red, white and purple, we reach the summit of the pass and look down nearly 3,000 feet on Emerald Lake, green as the glass on a relief map. As we climb to the perpendicular cliffs of Mt. Burgess, which tower 4,200 feet above the lake, we enjoy the peaks and glaciers of the President Range. Without apparent support a hanging glacier clings to the face of Mt. Vice-president. We cross the slope of Mt. Wapta beneath the fossil mine where Dr. Walcott of the Smithsonian Institution has found some of the earliest forms of life, and finally reach Yoho Pass and Lake, where in some years the Alpine Club of Canada is camped. Here one may spend happy days strolling amid the flowers, listening to the bird songs, or watching the

play of color on the lake. All shades of green mingle in such clear and quiet harmony that one may peer far into its depths by day; while, at evening hour, the darkening surface of the lake mirrors the rosy alpenglow of the mountains.

Down the winding trail we wander into the Yoho Valley, lingering often beneath the cathedral spires of the spruces, while we watch the great Takakkaw Fall hurling itself in splendid abandon for more than a thousand feet into the depths of the valley and filling the air with ceaseless thunder. Slowly it has worn its way into the heart of the mountain until wide converging walls of rock approach it on either side. Born beneath the ice of the Daly Glacier, the Takakkaw foams through its hidden canyon, leaping to view as it plunges downward to a ledge where it is hurled outward with the force of a geyser. Emerging from this mass of water a multitude of feathery comets start on their wild flight to the valley. Like rockets they race with one another, spinning a veil of mist before they disappear. Seething along the edges of the fall the mist streams upward, or is whirled about by the wind and irised by the sunshine. As the bridge across the turbulent Yoho is usually washed away, one cannot easily approach

F. W. Freeborn

TAKAKKAW FALL, YOHO VALLEY, THE GREATEST IN CANADA.

the foot of the fall. On one occasion my companion attempted to cross the river with the aid of a pole, but after encountering the current he was thankful to return to my side. In summer one will usually find a public camp not far from the fall.

The road already extending from Field to the Takakkaw will be continued to the Yoho Glacier at the head of the valley, but as yet we may enjoy the solitude of the trail through the forest. Turning to the right where it forks, we reach the brink of the Yoho Canyon, a wild gorge where the river has cut a tortuous passage through steeply tilted strata. Madly the water foams, leaping from wall to wall and filling the air with the voice of its incessant battle. A little beyond is Laughing Fall where the Little Yoho, alive with energy, bursts through a narrow opening in the cliffs and hurls itself to the rocks below. Shooting forth clouds of cooling spray it fairly imparts to the traveler the joy of its riotous waters. At the head of the valley we descend the moraine of the Yoho Glacier to the ice cave from which the Yoho River is born. In common with nearly all Canadian glaciers, this one is rapidly receding each year. The landscape is rich with color, from the surrounding cliffs of

light gray and brown which are painted with bright orange and violet to the deep blue and green of the ice in the cool shadow of the cave. Brilliant flowers wander among the tumbled rocks of the moraine. Cutting steps in the curving snout of the glacier, I have traversed its crevassed surface; and, from its upper snow fields, have climbed the surrounding peaks with fellow enthusiasts, regardless of storm or of hidden peril.

Retracing our steps, we pass through beautiful groves of fir and ascend Twin Falls Creek to its deep and narrow gorge, through which the water tumbles with great velocity. At Twin Falls the river takes a double plunge over sheer cliffs hundreds of feet in height. Near the base of the larger fall a jutting rock causes it to boil upward like a fountain. Following the high trail we reach the canyon of the Little Yoho and the club camp, which in some seasons is located on the stream above. Years ago I had taken the long trudge up the glacier to the summit of the President, 10,287 feet, where a snowstorm had hidden the view. Now I was to ascend Mt. Marpole, 9,822 feet, whose northern arête affords an interesting rock climb. The morning was exceptionally hot, but my Swiss guide, with lively memories of our for-

mer rapid climbs, led me up the valley and over the moraines without pause for five miles. Then we ascended the glacier, roped to cross the snow fields, and left our axes where we could recover them on our return. At last we were face to face with dark, forbidding cliffs rising high above us. So broken and disintegrated is the rock that we could hardly be sure of our hand- and foot-holds, and much of it is weathered so sharply that it could easily cut our hands. Acrobatic work is continuously provided, but great caution must be used to avoid dislodging rocks that may fall upon those who follow on the rope. Twice my hand found itself in the line of fire from stones which dropped fifteen or twenty feet from the guide who was concealed from my view. Sometimes the rope itself started a miniature avalanche which I had neither time nor room to avoid. In really serious work the rope may sometimes be only a moral protection; for, if one should slip, he might easily fall far enough for fatal consequences, while the weight of one who suddenly falls will pull backward the best of climbers if he is taken unaware. Warned by distant thunder we did not linger, but reached the summit in about an hour and three-quarters. Here we enjoyed a view of great extent,

comprising a multitude of peaks from Hungabee and Deltaform in the east to Mt. Forbes in the north, and Sir Donald in the Selkirks to the west; while near at hand there loomed the white summit ridge of the President. We descended the treacherous ledges leading to Emerald Pass in three-quarters of an hour, glissaded down the glacier, and returned to camp in record time for the climb.

The upper trail of the Yoho has many extensive views of the valley and of the surrounding mountains. It leads past cloudy blue-green lakes and over a great moraine on the slope of Mt. Vice-President. As we approached this wilderness of rocks a storm burst upon us, driving us to the shelter of a group of firs where we waited for several hours. Intensified by the rain, the slopes of the valley were clothed with brilliant green, dark red and purple. After the rain, little clouds lingered below us like whisps of cotton, and white cloud blankets covered the hills, while the mountains loomed high and spectral through the mists. The next morning we strolled down to Field, following the lower gorge of the Yoho to its junction with the Kicking Horse, where the river widens to cover the floor of the valley. Above it are the heights of Mt. Stephen, 10,485 feet, to which hang

A. K. Ford

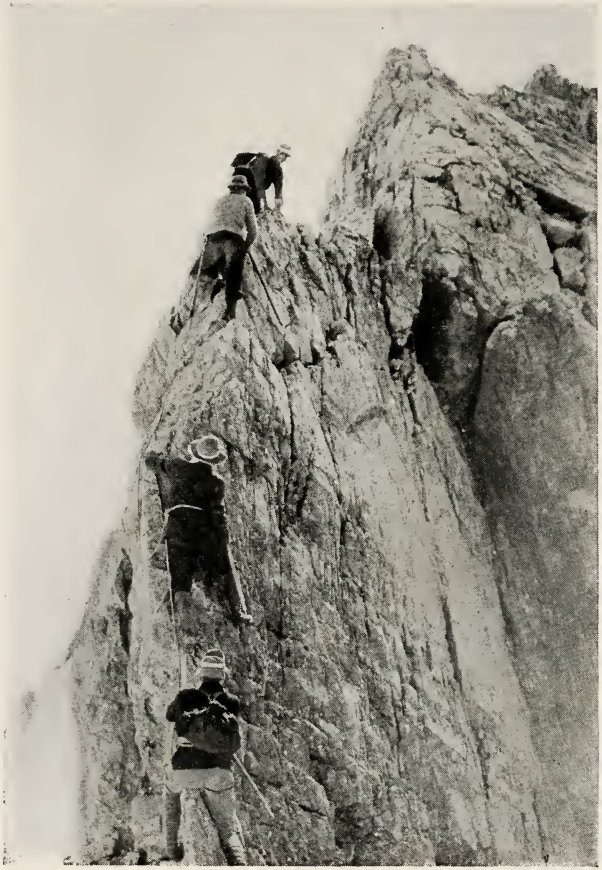
MOUNT STEPHEN, 10,485 FEET, FROM BURGESS PASS.

narrow trails leading to tunnels where silver is mined. If one is a good walker he may make the circuit of the Yoho from Takakkaw in a day, descending Yoho Pass to the chalet on Emerald Lake for the night.

From our camp at the head of the Little Yoho in 1914, we enjoyed a knapsack trip of four stormy days, in which we climbed five peaks. Having enlisted Conrad Kain, a famous Austrian-Tyrol guide who has done much fine work in Canada, we made the most of our opportunity and forced our way through the blizzard, although none of us were acquainted with the mountains we climbed. There was good rock climbing on the arête of Des Poilus (then Mt. Habel), 10,361 feet, but the extensive view of glaciers and snowfields from its summit was largely hidden. One chill and rainy morning we found interesting and even dangerous work on Mount Collie, 10,315 feet. With new snow on a steep icy slope, a concealed bergschrund which swallowed falling rocks and awaited us far below, icy cliffs slanting in the wrong direction for holds and covered with talus eager to descend on our heads without notice, even Conrad exclaimed, "Never again for me!" Often does the climber on these uncertain rocks find himself on the verge

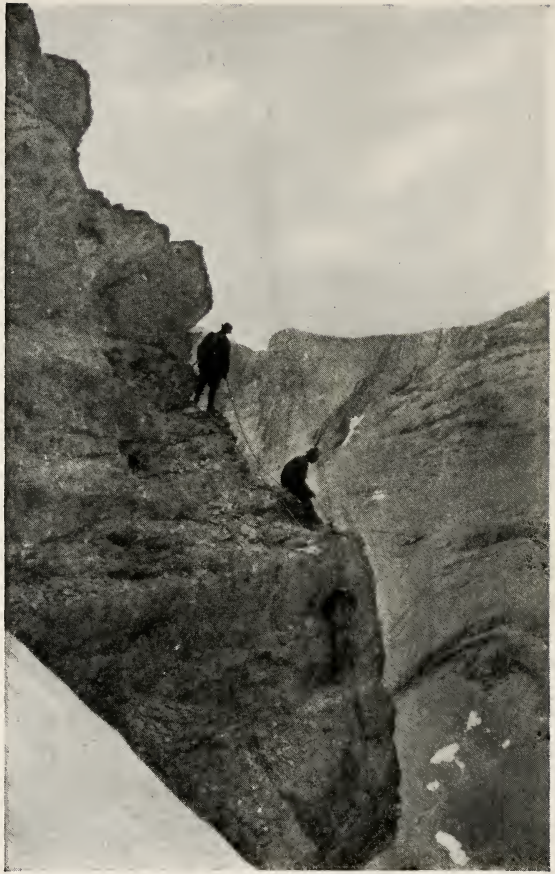
of becoming a celestial mountaineer! It is hardly necessary to state, however, that we conquered the mountain with especial satisfaction.

On another day of continuous storm we got the party to what they supposed was the top of Mt. Balfour, 10,731 feet, but the actual summit rises high above the arête at its southern extremity. Conrad finally led the party up a snow slope, while I climbed the icy rocks overhanging the valley. Just as I reached the summit cairn, a fierce blizzard with electrical conditions hid all from view. Although it seemed doubtful if the party would continue the ascent, I waited for twenty minutes, being finally rewarded by seeing them struggling up the precipitous slope. Just as Conrad reached me, lightning from a cloud ten or twelve feet above struck him on the head, and, drawn by the axes of the party, bowled them all over like nine pins. Although Conrad was stunned he was able to shout, "Throw away your axes, and run for your lives!" We did not argue the point. Down over an unseen slope we tumbled, finding overhanging rocks for protection. Here we froze for an hour, catching glimpses of the abyss at our feet, while we waited for the storm to pass. Although I have lingered alone amid electrical storms on



Byron Harmon

ALPINE CLUB OF CANADA CONQUERING MT. HABEL
(NOW MT. DES POILUS).



Byron Harmon

ON THE ARÊTE OF MOUNT MARPOLE.

California peaks when the rocks sang, or my uplifted fingers crackled, I had not before formed quite so close an acquaintance with lightning. The men felt as if they had been hit in no uncertain manner by golf balls. Some one suggested that we had received unusual consideration on account of the five ministers in our party. I was quite in sympathy with their work, but was not wholly prepared for their baptism by fire. As the storm did not cease, we finally retraced our steps, picked up our axes, and made record time back to camp.

IN THE SELKIRKS

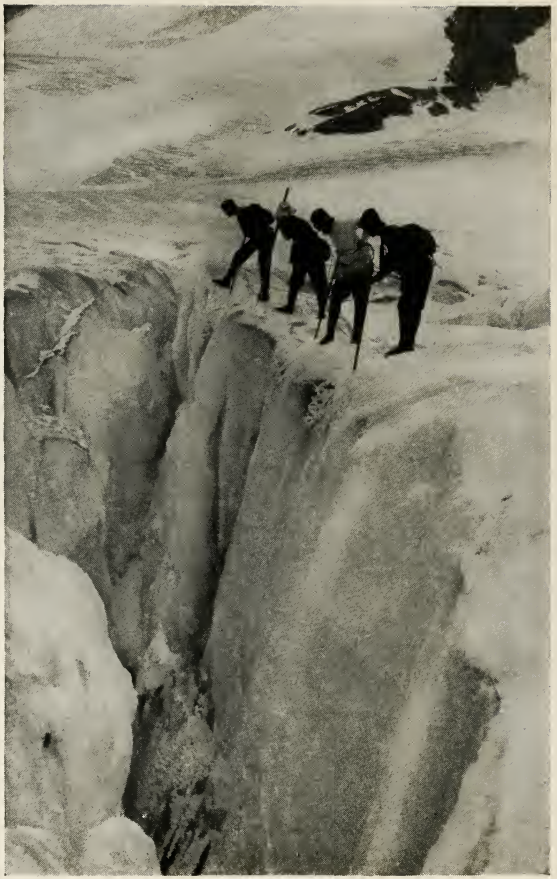
Convenient to Glacier House in the Selkirks is Mt. Sir Donald, 10,808 feet. The traverse of this peak via its northwest arête affords the finest rock climb in these mountains, offering many little problems to delight the mountaineer, and it had only been accomplished five or six times. Arousing our guides we started with lanterns at 2.10 A.M. and followed up the steep slopes leading to the col between Uto Peak and Sir Donald. Reaching the ridge a little above the col we found continuously interesting rock work in which we often had to search for our holds. In spite of the awk-

wardly overlapping strata, we followed the arête very closely until we found a vertical cliff near the top, which necessitated a slight traverse before the route could be resumed. On reaching the summit at 9.10 we interchanged signals by mirrors with Glacier House, and paused to enjoy the magnificent view that greeted us on every hand. In the distance, from their sparkling snowfields, rose the giants of many a summer's conquest; while far to the south stretched the white illimitable wilderness of the Dawson, Bishop's and Purity ranges. Descending by way of the chimneys, we jumped the bergschrund and arrived at Glacier House at 1.10 P.M., thereby reducing the record by several hours.

Every one stopping at Glacier walks up to the Illecillewaet Glacier, but they usually find it a little farther than they have expected. It is a pleasant stroll up through the evergreens to Lake Marion, a little tarn overlooking the valley of Rogers Pass, with the Hermit Range above; and one may easily keep on to the summit of Mt. Abbott for a more extensive view. Another enjoyable trip for a tramper is up the Asulkan Valley to the crest of the glacial pass at its head. It is sometimes necessary to climb over the deep tangle

Byron Harmon

HUNDRED FOOT ICE WALL OF TUMBLING GLACIER.



Byron Harmon

CREVASSE ON THE ROBSON GLACIER.

of an avalanche which has swept hundreds of trees into the valley; and, if we climb the alps beside the glacier, we may find the grass rather slippery, but the views are rewarding. Since the construction of the tunnel the scenery of Rogers Pass and the Illecillewaet Glacier is hidden from the train; but, as we go westward, the backward view of the vast pyramid of Sir Donald, with Uto and Eagle Peaks, towering among the sunny cloud mountains of the sky, is never to be forgotten.

At North Vancouver the British Columbia Mountaineering Club has constructed a romantic trail to its cabin on Grouse Mountain. Not far away is Capilano Canyon, which we ascend on the remains of an old flume. Magnificent hemlocks border the gorge and the thick growth of large ferns is a constant surprise. Stanley Park at Vancouver is altogether delightful in sunshine, moonlight or even in rain. Giant cedars tower majestically above a tangled undergrowth festooned with moss. A thick carpet of exquisite ferns grows in utmost profusion, while scarlet lilies and delicate sprays of rose-red huckleberries enliven the verdure. Low arching maples form fairy grottoes with many a setting suggestive of the opera. There is a peculiar charm about the quiet city of Vic-

toria with its flower-embowered bungalows and the varied evergreens of its ocean park. Across the straits of Juan de Fuca the Olympics linger rose and purple in the twilight like the mountains of Japan.

AT MOUNT ROBSON

Highest of all in the Canadian Rockies is Mt. Robson, 13,068 feet, a night's journey west of Edmonton. On the left, near Jasper, the glistening white summit of Mt. Edith Cavell is seen; and later we catch a fleeting glimpse of a great white giant on the right, towering above the intervening mountains. Just beyond Mt. Robson station the full majesty of the mountain is revealed, and we gaze in admiration at its splendid snow-hung summit, 10,000 feet above the Fraser River. Adjoining the peak on the right is the radiant slope of Mt. Resplendent, 11,173 feet. In 1913 when the railroad had just reached the region, the Alpine Club of Canada established its camp to the north of the mountain. We had eighteen or twenty miles of uphill climb in the pouring rain through the Valley of a Thousand Falls, past the great Emperor Fall, and along the shore of Berg Lake into which Tumbling Glacier precipitously descends.

Byron Harmon

MOUNT ROBSON, 13,068 FEET, HIGHEST OF THE CANADIAN ROCKIES.
TUMBLING GLACIER AND BERG LAKE.

From our camp near the mighty Robson Glacier, we watched in awe the everchanging summit of Mount Robson, wreathed in clouds and veiled by storms, grandest of all the mountains of Canada. When at evening we gazed far upward at its majestic, snow-crowned heights now tinged with rose of alpenglow, they seemed almost to be of another world.

On a most interesting expedition to the north to view unmapped country, we cut our way down the sheer ice wall of Mural Glacier, while a flock of mountain sheep paused to watch our entrance into their territory. From a virgin summit, which we named Mt. Pamm, we beheld a magnificent array of glaciers; while to the north was massive Mt. Chown, and in the far distance there loomed the last great outpost of the range, Mt. Sir Alexander. Calumet Peak from the north provided two or three of us with an interesting climb, the approach to which was along a thin sliver of ice, separated from the rocks by a yawning bergschrund on one side and supported on the other by a few thousand feet of space. The knife edge arête of rotten rock afforded an exhilarating climb, which started showers of stones on their long journey toward the sea.

After we had helped the ladies of our party across a convenient log that bridged a foaming mountain torrent we left the men to help themselves. Midway of the log one of them felt the irresistible call of the waters and plunged headlong into their icy embrace. In the instant that he was swept downstream, with death only a few moments away, Donald Phillips, our guide, plunged after him and had reached the bank in safety with his man before those who had cameras thought to use them. Phillips did not seem disturbed, and after making camp, merely remarked he guessed he would empty the water from his boots!

On the following day we strolled up over the Coleman Glacier, whose smooth and rounded surface resembled a great globe. In crossing its upper snow fields we roped for protection from hidden crevasses, placing the women at intervals between the men. After I had taken a long step over snow that my intuition suggested might conceal a chasm, I felt a tug on the rope, and, turning, beheld no woman. Phillips and I hastened to pull her up from the fifteen or twenty feet she had fallen, finding her pluckily holding to the coil of rope in her hand. The other women hastened to inquire how she felt, to which she replied, "Just as

Summit of Mount Des Poilus.

Byron Harmon

Eastern Face of Mount Robson. First complete ascent made from this side.

Byron Harmon

you would under similar circumstances." As we crossed Snowbird Pass there burst upon us one of the world's greatest mountain views, the eastern face of Mount Robson. Three men had just forced their hazardous way up its cliffs, finding the snow cornice at the summit almost too difficult to surmount. Impossible on account of avalanches to return by the route of their ascent, they spent the night hanging to a sloping ledge on the other side of the mountain. One of them was snow blinded, but fortunately they were able to find a way down on the following day. As we were jumping the network of crevasses on the Robson Glacier on our way to camp, word reached us of their safe return.

With no easy point of attack, Mt. Robson seems likely to remain one of the most difficult and alluring climbs which the mountains have to offer. Viewed as yet by a mere handful, this wilderness of snow and ice, of terrific precipices and sublime heights, holds much in keeping for all who seek the solitude and the companionship of the mountains, that they may worship amid their eternal sanctuaries.

Byron Harmon

ON MOUNT RESPLENDENT ABOVE THE ROBSON GLACIER.

Byron Harmon

CONRAD KAIN DESCENDING TO THE REEF GLACIER.
(Notice strata of rocks: camera is not tipped.)

COLORADO, THE GATEWAY OF THE WEST

CHAPTER VII

A GLIMPSE OF THE ROCKY MOUNTAIN NATIONAL PARK

ANY easterner who plans to visit the west for the first time should arrange to enter its wonderlands by way of Colorado. He will never regret the time that he may linger among its friendly mountains. The charm of the west is first felt by the traveler on the high plains of eastern Colorado, when he catches a glimpse of the snowy range of the Rockies, looming on the horizon from Longs Peak in the north to Pikes Peak in the south. If it be in the early morning or evening hours the peaks are lit with rosy glow, while in the heat of the day they mingle with the radiant clouds, or slumber softly in the purple haze. Happy is he whose first impressions are these!

In Denver is the headquarters of the Colorado Mountain Club, an increasing group of outdoor enthusiasts who are doing much to make known and to preserve the beauty of the mountains. Their

local walks and excursions afford exceptional opportunity to the lover of nature, and their summer outings to seldom-visited valleys and peaks provide abundant climbs for the mountaineer. With over forty peaks exceeding 14,000 feet in height, Colorado has much to offer those who breathe the tired air of cities. If you would hear the call of the mountains, stroll over to Cheesman Park in Denver at twilight. Here is a magnificent view of the Front Range of the Rockies, stretching before you for over a hundred miles. You are usually sure of a marvelous sunset that will uplift the heart of every true worshiper.

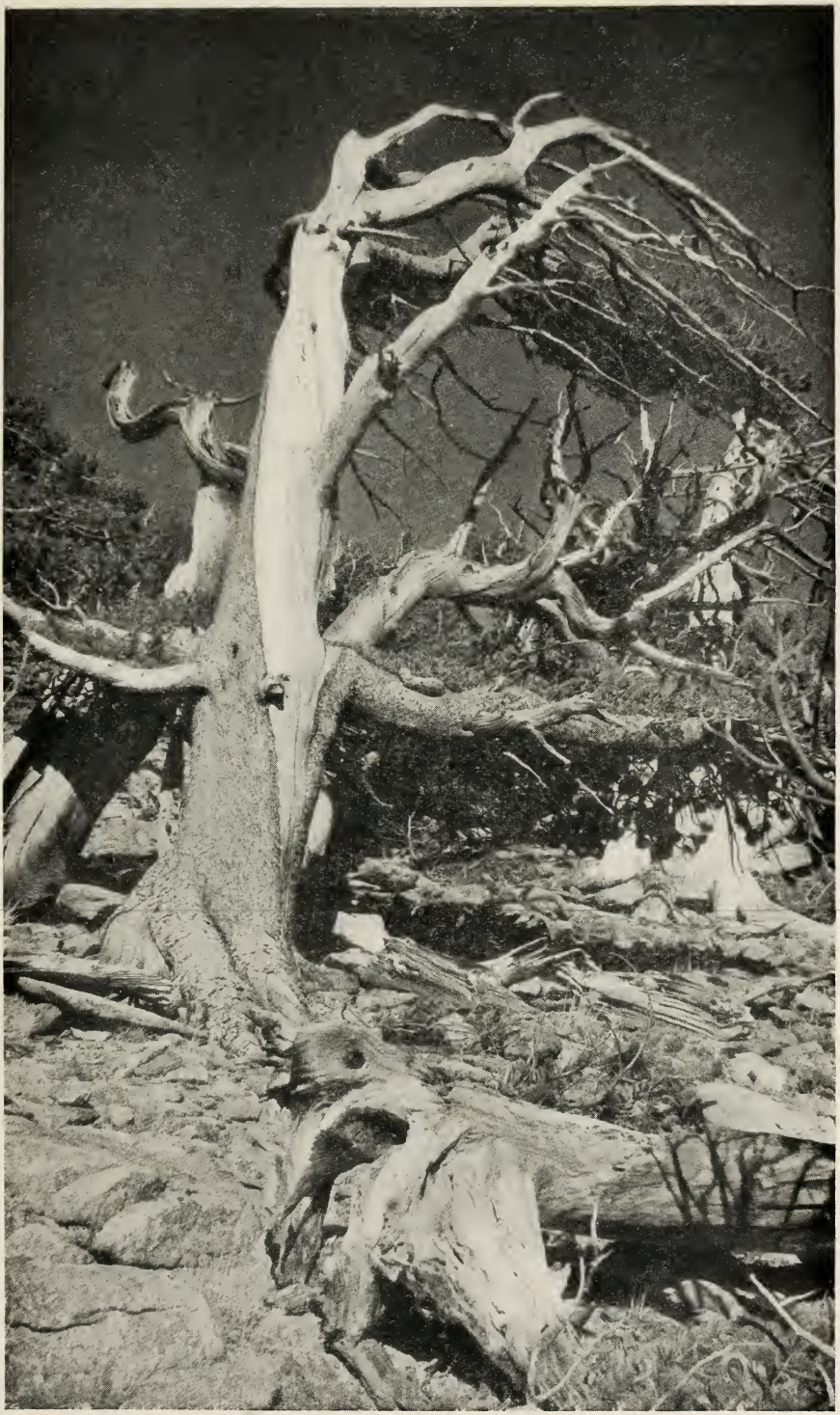
Of recent years a number of the most scenic mountain railways in Colorado have been abandoned, but some of importance still remain. After following the winding walls of Clear Creek Canyon it was formerly possible to ascend Mount McClellan by switchback railway from Silver Plume, a new experience to many travelers. From its summit one could traverse the ridge, with extensive views into the depths, to Grays Peak, 14,341 feet. One can never forget the early morn on Mts. Harvard, Yale and Princeton, towering vast and spectral above the misty vale of Buena Vista on the Colorado Midland; or Mount Massive near Lead-

ville, peering forth from fleecy clouds resplendent in new snow. Winding back and forth across the mountainside, the short line from Colorado Springs to Cripple Creek gave wonderful views into the colorful North and South Cheyenne Canyons, and afar to the plains.

Years ago I walked up Pikes Peak, 14,109 feet, with a friend over another route than that of the railway. Among the rocks of its upper slopes there are clusters of the tiniest and deepest blue flowers imaginable. Although it was Fourth of July, a rescue party had to assist ladies who had foolishly attempted to reach the top by following the cog railway. In the darkness and blizzard they might easily have perished amid the snow banks that clothe the steep slope near the summit. Even in a stone hut, a night on a 14,000-foot peak may seem rather cheerless to one who is not a mountaineer; and mountain-sickness may prove quite as disagreeable as sea-sickness.

The Rocky Mountain National Park is convenient to reach by rail or by auto from Denver. Our car travels northward through fields of white and yellow flowers, beyond which glistening peaks peer over the foothills all the way. We enter the park

by its most scenic eastern approach through the high-walled canyon of the Big Thompson, which is on the whole more interesting than either the route from Ward or by the South St. Vrain. From the village of Estes Park one may follow roads and trails into the high valleys of the Continental Divide, finding the most charming little lakes, residual glaciers and splendid mountain scenery. Everywhere is a brilliant profusion of flowers that carpet the meadows and climb the mountain slopes to the receding snows. Nowhere will one find more fascinating timberline trees than at 10,500 to 11,500 feet on these peaks. Gnarled and stunted by their perpetual struggle with the winds and storms, they crouch behind the boulders or huddle closely together in matted groups for mutual protection. In a lifetime many reach only a foot or two in height, while their annual rings are hardly a hundredth of an inch wide. Diminutive of size but great in courage, they carry on the battle of life for centuries. Like the skeletons of prehistoric monsters are the whitened limbs of the limber pines; while the branches of the Engleman spruce at timberline stream before the wind like a flag. As these trees part with their life and warmth in the campfire's flickering glow, is it not easy to



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WINGED VICTORY!
AT TIMBERLINE, 11,500 FEET, ROCKY MOUNTAIN NATIONAL PARK.

imagine they are telling us their age-long secrets? What sympathetic companionship does the forest wanderer find in the pines; and how steadfast of purpose, yet yearning in appeal, are the hemlocks, offering warm shelter to all from the storms.

Delightful trips may be taken from Estes Park to Fern and Odessa Lakes, to rugged Lock Vale enclosed by peaks; or one will be amply repaid by following the trail over Flattop, 12,300 feet, from which other high summits are easily reached. Unquestionably the most interesting trip in the park for a mountaineer is the ascent of Longs Peak, 14,255 feet. If one is less strenuously inclined he should at least view its eastern face from Chasm Lake. The trail from Longs Peak Inn passes through mountain meadows rich with flowers and happy with sunshine. During the season about 500 varieties of flowers are said to be found within a very small area. There are exquisitely perfect purple and white columbines, scarlet paint brush, delicate blue bells, white and yellow anemones, and luxuriant clumps of mertensia with swaying blue and pink bells. Snowbanks along the rushing streams reach down into the forest, and as the trail climbs to timberline, the trees tell eloquent stories of their struggle with

the storms. Near timberline cabin, where those who are to climb the peak spend the night, we turn to the left and cross the moraine-covered uplands. Here are brilliant patches of blue phlox, pink moss campion, and tiny white and yellow flowers, literally carpeting the ridges, for nearly all are without visible stems. It is quite a scramble along the rocky slope to the glacial cirque which cradles Chasm Lake. This is a wild scene where titanic forces have riven and torn into the heart of the peaks, leaving a sheer precipice about 2,400 feet above the lake. In this stronghold of the winds, surrounded by the gigantic cliffs of Mounts Meeker, Lady Washington and Long's Peak, one may feel a vaster desolation than is usually experienced in nature.

Very early one summer when the snow was still unmelted on the peaks, I found my way into the park of an afternoon, and I had to leave Denver for the east by the next evening. What was there better than to view the landscape from the summit of Longs Peak? Reaching timberline cabin at 11,050 feet by dark, I was ready for an early start the next morning. There is a clear trail to the boulder field, where one must cross about a mile of tumbled granite to an opening in the arête of the

Mile High Co.

EASTERN FACE OF LONGS PEAK, 14,255 FEET, AND CHASM LAKE, COLORADO.

mountain called the Keyhole. Here the wind was almost too strong to permit me to continue, but between gusts I succeeded in reaching the ledges beyond. Snow and ice lay thick upon them, occasionally inviting a too-rapid descent into the depths of Glacier Gorge. The route was not very apparent to the Trough, which is a couloir of several hundred feet leading to the inner cliffs and the southern face of the mountain. As I climbed, the wind attacked me in fierce gusts and I found in my ice-axe a very useful companion. At the head of the couloir there was a thrilling view downward for 2,000 feet into Wild Basin. Then a little snow-covered ledge, called the Narrows, led across the face of the cliff to a point where it was possible to again ascend. This is called the Home Stretch, and it required careful work with hands and feet to overcome the difficulties of ice and wind on steeply sloping rocks. From the summit at 14,255 feet, range after range is visible, with Pikes Peak over 100 miles to the south. Contrasting with the mountains are the plains extending to the horizon in the east. Descending the slippery rocks with care, I reached the valley in time to leave the park early in the afternoon.

When one must return to the city, he should do

so by the auto which crosses the continental divide on the recently constructed Fall River Road to Grand Lake on the western border of the park. Then one crosses Berthoud Pass and reaches the plains through the famous Mountain Parks of Denver. Leaving Estes Park we followed Fall River into Horseshoe Park, where there are glimpses of Mts. Ypsilon, Chiquita and Chapin. As the road climbs the range it loops back and forth past unnamed snowy peaks, with increasing backward views of the park. It was early in the season and there was a profussion of purple and yellow flowers until we left the forest. It is 20 miles from Estes Park to the summit at 11,797 feet, where we were delayed by twenty-foot snow banks, which were being removed by the use of many tons of TNT.

Climbing the ridge from the pass I found fragrant deep-blue flowers and a distant view of the plains of Wyoming. On the western side of the divide we were near Specimen Mountain, which is composed of interesting volcanic rock; and for some distance we were in sight of the snowy Medicine Bow range. Then there were many fine views into the valley of the North Fork of the Grand River, as we zigzagged down the mountain side

and at last reached Grand Lake. This interesting road provides one of the highest scenic routes over which an auto may travel in America.

CHAPTER VIII

THE MESA VERDE NATIONAL PARK

In the southwestern corner of Colorado is a region whose wonders were unknown to white men until recent times. Over 600 years ago its population may easily have exceeded 100,000, but no one remains to reveal the mysteries which archæology is seeking to explain. This tableland of the cliff dwellers slumbered through the centuries until 1888, when the Wetherills, hunting wandering cattle, paused in wonder before a prehistoric city of the cliffs.

Even to this day the journey to the Mesa Verde National Park is long and slow in comparison to that to most of our parks. As yet it is reached only by a narrow-gage railway, over portions of which progress is often unsafe at more than ten miles an hour. One of the scenic routes by which one may travel is that from the main line of the Denver and Rio Grande at Salida. Changing to a diminutive train we climb to an elevation of 10,856 feet over the shoulder of Mount Ouray. We then

loop downward and finally reach the Black Canyon of the Gunnison, which is a narrow gorge with colored walls of interesting height. At Montrose we turn to the south, and at Ridgway are in sight of the snowy ranges of the San Juan. Choosing to approach the Mesa Verde by way of Telluride and the Ophir Loop, and to return by way of Silverton and Ouray, we turn to the right from Ridgeway. Slowly we climb through great masses of wild roses of deepest hue, while we exclaim at the superbly impressive view of Mount Sneffles, 14,156 feet, and the peaks of the Sneffles range, white-robed amid the clouds like the rugged giants of the Canadian Rockies. Then we pass through a deep-red sandstone country, with white occasionally outcropping, where the green trees are in striking contrast to the richly colored soil. On the hillsides are many mines, for here is found one of the world's greatest deposits of ore from which radium is extracted. It is a high climb for our little train to the mining town of Telluride at 8,756 feet, where we spend the night.

In the morning we mount upward past the Cathedral Spire on the Ophir Loop to Trout Lake, beyond which the white peaks of the Wilson Range offer good climbing on their pinnacled faces. We

pass the San Miguel Mountains by the Lizard Head Pass at 10,238 feet; and on the right we see the Lizard, a formidable-looking tower of rock for any climber. From the snows we descend to tropic heat and verdure through Dolores Canyon, walled with sandstone of many shades. At Mancos an auto awaits us for the ride of 37 miles to camp within the park.

The approach to Mesa Verde is one of the most interesting of any of our parks, for it requires an eighteen-hundred-foot climb from the plain to reach the highest point of the summit plateau at 8,575 feet. From the winding road there is a beautiful view across the Mancos valley to the La Plata Range. We ascend through a forest of juniper, oak and piñon, with luxuriant white hollyhocks and blue larkspur by the way. Reaching the summit of the green plateau, or Mesa Verde, we cross the heads of many canyons clothed with cedar and piñon. Flocks of crows rise from the pines, and scores of prairie dogs stand guard at their holes as we speed past. From the high northern rim we gaze into the Montezuma Valley 2,000 feet below, purpling like a measureless expanse of the ocean, while beyond are the snow-capped peaks of the Uncompahgres. To the west is a long mountain

known as the Sleeping Ute from its resemblance to a reclining human figure, and in the distance are the LaSalle and Blue Mountains of Utah. To the south are the mountains of Arizona, and we see an unusual sandstone pinnacle, about 40 miles away on the New Mexican desert, which has long been known as Ship Rock. Four states are visible, Colorado, Utah, New Mexico and Arizona, and on clear days mountains that are at a great distance loom on the horizon.

We reach camp on the mesa opposite Spruce Tree House, which is the second in size of the ruins. A trail leads down to a cooling spring underneath the cliff, and then across to the cliff dwelling, which was named from a large spruce that had grown in one of the outer rooms. This was the first building to be excavated and repaired by the Bureau of American Ethnology, which has since restored many others in the park. The cave which it occupies is 216 feet long by 30 to 50 feet high, and was completely filled with 114 little rooms, one above another, and by others called kivas beneath the ground. The inhabitants were diminutive in stature and it is rather difficult for one to enter some of the rooms in this and the other cliff dwellings. The mesa above was once

an agricultural country where corn was raised, and the natural caves below were first used to store the corn. Then they were made habitable for winter by the women who constructed walls of masonry, which they occasionally plastered with mud and then painted and crudely decorated. The men were the hunters and the protectors of their homes from the attacks of the plains Indians.

In nearly all these cliff dwellings were found an interesting variety of utensils, implements and ornaments; but, alas, they were not allowed to remain. Before public sentiment demanded a national park, there was an organized spoliation for years of all the ruins which could be reached in this region. Museums succeeded in obtaining something from the wreckage, but priceless treasures by the carload were removed for commercial purposes. Even in the present day the ruins must be guarded to prevent removal of everything that remains. One party brought pick and shovel with which they excavated and removed a large stone jar, which intentionally had been left by the restorers as it was found. Wherever there is opportunity to deface the prehistoric art, which the dry climate has preserved for 600 years, the public carves and writes a multitude of names. Where

Spruce Tree House, Mesa Verde National Park.

G. L. Beam

Over 600 Years Ago the Cliff Dwellers Lived in Southwestern Colorado.

G. L. Beam

the addresses are thoughtfully included, it is now possible to suitably reward the artists!

At sunset we visited Sun Temple, an apparently uncompleted structure high on the mesa, which Dr. J. W. Fewkes of the Smithsonian restored in 1915. As we walked back and forth upon its walls of stone, laid carefully with mud and clay, we noticed the stump of a tree which had grown upon the wall for at least 360 years. Close to the brink of the canyon on one of the cornerstones we saw fossil palm leaves and shells on the sandstone rock, clear evidence that this was once a tropical country. No one has yet been able to determine the exact age or purpose of this remarkable building.

Fire House, excavated in 1920, seems to have been used as a temple for fire dances and worship, and it is supposed that from its central pit fire was distributed to the community. Here are red and white plastered walls with animal pictures and zigzags resembling lightning. In many of the cliff dwellings there are blackened pieces of pottery of early type and design, as well as the more recent smooth pottery which was painted with red, white and black figures. Large jars and unbroken pottery with beads and other ornaments are found when a ruin is excavated.

There are primitive stone mills and metates, resembling stone washboards, on which the little brown maidens ground the corn; crude fireplaces where it was cooked, and blackened ceilings in these caves which tell us of a vanished race. Corn cobs and squash stems lying in the dust of centuries are plentiful, as are the bones and feathers of turkeys. One may find many bones which were turned into awls by rubbing them on the sandstone. Cloth and rope were made of vegetable fiber and matting was made of willow withes joined by yucca fiber. The feathers of turkeys and eagles were woven into cord. In the construction of their houses cedar poles were often used, and these were bound together or made fast to the masonry by the use of bent willow. Twigs and fibers were frequently tied in neat square knots. So dry is the air of these open caves that everything remained as it was left for many centuries awaiting the modern despoiler. Human bodies that were buried here have simply dried up, and are now and then discovered when excavating a ruin.

Among the many cliff dwellings which we visited, one of the most interesting was Balcony House, excavated by the present superintendent of the park, who showed us its interesting features.

This communal house is of a high type of architecture and originally contained twenty-five rooms. It has a well constructed wall to prevent its inmates from falling into the canyon, and is called Balcony House from a shelf which extends along one of its walls at the second-story level. In the depths of the cave there is a fine spring that would enable its people to withstand a long siege. Its rooms were well plastered to keep out rats which were seeking corn, and we saw the prehistoric finger prints that were left in the mortar. These people were divided into clans, and each group had its community house, which was gradually constructed during many years.

The ancient entrance through which we passed into Balcony House is by a cleft in the rock, and was formed by a great slab splitting from the wall and lodging just at the brink of the canyon. This opening was walled up to leave only a low tunnel through which the visitor had to creep on hands and knees. As an intruder approached along the narrow ledge, with a high cliff on one side and a precipice on the other, he offered an easy mark to the defender, who could shoot arrows from a porthole above the tunnel. If the enemy succeeded in entering the tunnel, he was crushed by large rocks

which were dropped upon him in the dark. While there is ample evidence of the means of defense and warfare in many cliff dwellings, others are quite open to attack. Contrary to what was at first supposed, there appears to be no reason for believing that the cliff dwellers were driven from their homes or killed in large numbers. It seems probable that they gradually migrated southward for agricultural reasons, finding more fertile fields; and that they occasionally returned to their former abodes to bury their dead and to drink the waters which they believed had curative powers. Who were their ancestors is still an unsolved mystery, but there is evidence that they were Hopi and Zuni Indians. No one knows who are their descendants, but the Hopis have legends that their people came from the cliffs.

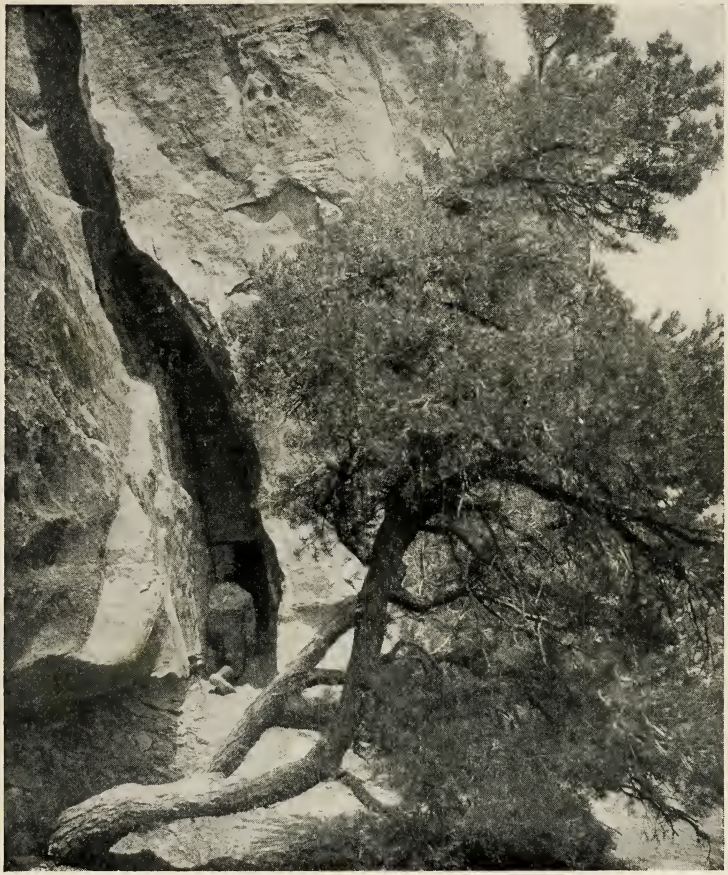
At Square Tower House the circular kivas are still half roofed over with cedar poles which are blackened by countless fires. Six points to the compass are indicated in each kiva, and a hole in the center was supposed to lead to the world below, while another hole on the side allowed the smoke to escape. Some idea of the length of time that these kivas were used may be obtained from the many coats of plaster which cover the walls. These

underground rooms were used as meeting places for the clan and for ceremonial worship; later some of them were used as corn mills, and finally as burial grounds. I climbed 40 or 50 feet up a crack in the rock within the tower for which this house is named. There were holes in the wall for use of bow and arrow, and little more than a hole through which I insecurely wriggled to the topmost look-out beneath the overarching cliff. Then I called to the opposite wall of the canyon, half a mile away, and the cliff plainly returned my voice. So remarkable was the echo that I was able to count consecutively from one to twelve and then hear each number distinctly repeated to me. Evidently the cliff dwellers found this a convenient abode, for there is a distant watch tower which commands the country on the opposite mesa and warning of approaching enemies could easily be given.

Of all the cliff dwellings, Cliff Palace is the largest and most interesting. It is 300 feet in length and the roof of the cave is 50 to 100 feet above. It was probably several hundred years in building, contained about 200 rooms with 23 kivas, and would accommodate 600 people. Built of cut stone and adobe mortar it has remarkably withstood the ravages of time, and if sightseers can be

controlled, will remain indefinitely. Here is a round tower with remarkable masonry, and a square tower containing a plastered third story with red and white decorations, that are almost as brilliant as if they had been preserved in an Egyptian tomb. Ladders enable one to climb conveniently from wall to wall throughout the ruin, but there is no remaining approach to little walled-in chambers high in the rock above, which were probably used as granaries. Cliff Palace has several remarkable mill rooms where the corn was ground with stones, and the metates, or meal stones, are perfectly preserved. Even the brushes used to gather the meal in baskets were found in the mill where they had been left.

We visited an earth lodge having only one main room with 18-inch walls of adobe. This marks the first stage of civilization in Mesa Verde, and it was completely buried by earth, with only little stones scattered above the ground before excavation. In the surrounding country there are many buried houses, indicated by mounds on which bushes and trees may be growing. These pueblos are of the same construction as the cliff dwellings, but are often located in sightly places. One of the most interesting is Far View House, excavated in



G. L. Beam

ANCIENT ENTRANCE TO BALCONY HOUSE.

G. L. Beam

CLIFF PALACE IS THE LARGEST OF THE CLIFF DWELLINGS.

1916, from which one may see a wide sweep of country embracing four states. It has many rooms with a court and four kivas, one of which is 32 feet in diameter, the largest yet discovered in this locality. Many skeletons have been found in the adjacent burial ground. Thousands of these settlements and burial grounds, ranging from primitive to advanced civilization, are scattered over the country for many miles. Sometimes they are indicated by mounds of earth, but elsewhere by a few outcropping stones among the sagebrush and cactus. Fascinating discoveries are often reported from distant canyons and mesas, and one feels that the life of an archæologist has many rewards.

It is often interesting to discover and follow the ancient trail which leads to a cliff dwelling. Sometimes it traverses a narrow ledge on the face of a cliff, but frequently it climbs directly up or down and consists only of toe- and finger-holds, which have nearly disappeared in the weathering of centuries. Many of the little caves in this country are absolutely inaccessible without the use of ladders, which was doubtless the original way of entrance. Others can be reached by descending a long rope tied to a tree near the edge of the cliff. It is sometimes rather thrilling work to descend a

rope until one's arms are nearly exhausted, and then to swing inward in midair with the hope of getting a footing at the entrance to a cave. With a spy glass one can see treasures awaiting the explorer in cliff dwellings along the Mancos River, but a 250-foot rope and some courage is required. I was ready for adventure, but the chief ranger had unfortunately been sick, so we compromised on a horseback trip across country.

It was rather a wild ride into the depths of Soda Canyon, 700 feet below the rim, and our horses had to force their way through chaparral down a very steep slope. In the dry soil of this sunny region we found miniature craters made by a little insect that concealed itself below, ready to devour any unhappy bug which slid down the steep incline. The heat was intense, and the only safe water to drink in the canyon was that which we carried with us. We noted with great interest the many little dwellings hidden away in the recesses of the cliffs on either side. Many are ordinarily invisible to all save the experienced eye, but the tiny entrances and crumbling walls may be brought near with a good glass. Most of them have already been hastily pillaged, but here and there one remains for the careful eye of the scientist. Be-

yond the boundary of the park we ascended a side canyon to a hidden and almost entirely unexcavated dwelling. We crawled over its crumbling walls and into its silent rooms, finding many little objects which spoke eloquently of an age that is long past. In this ruin my companion found a delicate necklace of blue stones, which is now in the park museum. It seems to have been hidden behind plaster in a secret recess of the wall, and was dislodged as he climbed about. Unlike all the cliff dwellings in the park this one has rectangular kivas, which are a more ancient type than the circular ones. What treasures are buried within them only the spade can disclose.

Agreeing that any other route to camp would be preferable to the one by which we had come, we climbed to the plateau and rode for many miles through the forest of piñon and juniper. It was anything but pleasant to encounter their scraggly and unyielding branches on horseback. The appearance of the country is much alike and it is easy to lose one's way. Over the mesa roam coyotes and mountain lions, the only inhabitants of a once-populous region. Frequently we saw surface indications of buried dwellings or graveyards, with bits of flint and pottery strewing the ground. At

last we turned downward into the canyons, pushing through thick growth for some distance before we climbed to the welcome road to camp. Our trip of about 25 miles was a memorable one. As yet the Mesa Verde is one of our least visited parks, but it is destined to become one of the most often sought by the intelligent traveler, for it combines the charm of the southwest with the mystery and romance of a vanished race.

This record would be incomplete without brief reference to the route leading back to Montrose and the main line at Grand Junction, by way of Durango, Silverton and Ouray. Leaving Mancos and later Durango in the afternoon, we ascend the rugged canyon of the Las Animas to the terminus of the railway at Silverton, 9,300 feet in elevation, where the night is spent. Then we continue by motor stage over the mountains to Ouray, crossing the divide at 11,235 feet, and finding fine scenery on its far side beyond Irontown. All the way from Silverton there are many mines upon the steep slopes of the mountains, but most of them are unprofitable to work at present. Most effective is the vivid color of Red Mountain, flecked with snow, against the blue sky; and the canyon of the Uncompahgre is very deep and wild. The road is

blasted from the cliffs and crosses a side canyon at Bear Creek Fall, 253 feet in height. We have glimpses of mountain peaks and a view of Ouray surrounded by mountains in the valley below. Just before reaching the town, we leave the auto and visit Box Canyon, whose walls are 300 feet high. They are of smooth, water-polished rock and are deeply pocketed. The stream shoots downward with great force into a seething cauldron behind a rocky curtain, and then leaps along the gorge below. A trail leads to a bridge across the top of the canyon. Ouray is in a colorful amphitheater whose eroded heights are of red and white, and of yellow and gray. There are interesting trails to the snowy peaks beyond. Here we again journey by train to Ridgeway, Montrose and the main line at Grand Junction.

AMONG THE MOUNTAINS OF CALIFORNIA

CHAPTER IX

THE CHARM OF THE DESERT

AMONG lovers of nature there is an ancient dispute as to which has the greatest charm,—the desert, the mountains, or the sea. Fortunate is he who knows and loves his California, for in this favored state one need not choose between them, as they are all present in superlative degree. For many summers I have roamed over its beautiful and majestic mountains, strolled on its poppy-strewn headlands overlooking the purple sea, or wandered along its colorful beaches in company with the mountains and the waves. Again I have traveled in midsummer over its burning deserts, rewarded by their ever-alluring, mysterious charm.

The Colorado Desert of southeastern California extends from San Gorgonio Pass and the eastern slopes of the San Bernardino, San Jacinto and Santa Rosa Mountains in a southeasterly direction to the Colorado River and the Gulf of California. It is crossed by the Southern Pacific Railway, and has attracted much attention by its fertile Imperial

Valley transformed by irrigation, and its unwelcome Salton Sea. To the north of the ranges bounding its upper margin lies the great Mohave Desert, which is traversed by the Santa Fe and the Union Pacific routes.

Most fascinating have I found the California deserts when viewed from the snow-crowned summits on their borders. There, amid the cold of 10,000 to 14,500 feet altitude, my eyes have wandered downward through the many zones of plant and animal life to the rich browns and purples of the desert and the opal hues of its shimmering lakes. Irresistible was their call, and I glissaded down the upper snowy slopes, descended perilous chimneys, and hastened along tremendous canyons to reach at last their waving palms and tropic heat. Their sands have often burned my weary feet, their vanished waters tried my soul, but still I long for desert air and rest beneath their wondrous stars at night.

At Yuma it is often over 110 degrees in the shade. Here the Colorado River is wide and of chocolate hue, flowing between low red banks that are lined with green. On the streets are date palms and cottonwoods mixed with mesquits, while brilliantly dressed Indians visit the trains with bas-

On the Mohave Desert, California.

G. R. King

Mount San Jacinto, 10,805 feet, from Two Bunch Palms, California.

© *F. P. Clatworthy*

kets and bead work. Going westward across the desert we pass the Chocolate, Chuckawalla and Cottonwood Mountains, ranges of death from which many a prospector never returns; while across the mystic waters of the Salton Sea are the Superstition and Santa Rosa Mountains. In centuries past the Gulf of California covered this area, but the Colorado River, bearing heavy burden of silt, formed a widening delta which eventually shut out the sea, leaving a great lake whose outlines are still clearly seen on the walls of the surrounding mountains. In recent years evaporation reduced this inland sea until the Colorado burst its banks in 1905, remaining uncontrollable for two years. The area of the Salton Sea was thus increased to nearly 500 square miles of water about eighty feet in depth. Much of the Colorado desert is below sea level and one valley now covered by water is a few feet lower than the famous Death Valley region north of the Mohave. On the hazy blue waters of this vast sea the pelican fishes, and at night the coyote haunts its desolate shores.

At Indio and Coachella are hot springs and groves of date palms and figs. Here the desert is thickly strewn with the diminutive fossil shells of a mollusk that once inhabited the lake. The oasis

of the Coachella Valley is rapidly becoming a great date producing center, and the only one in this country. At Palm Springs one may visit Palm, Murray, Eagle and Andreas Canyons in the San Jacinto range where there are giant fan palms (Washingtonia filifera), which should be included in a National Monument to give protection to this unique tree which is not found elsewhere in the United States.

Of greatest importance to the traveler are the desert signposts which direct him to the nearest good water. We have a western area of about 570,000 square miles which is unsafe to penetrate afoot without this information, and the U. S. Geological Survey has commenced the work by placing signposts and developing the scanty springs in the Colorado and Mohave deserts. In mid-summer the desert is sinister with temperatures of 125 to 130 degrees in the shade, and 140 degrees or more in the sun. One can travel afoot but a little way without water. On one occasion after making a difficult descent from the mountains to the desert, I found the afternoon heat so great that I could not hold my hand on the duxbak clothing of my back, and was compelled to lie down every twenty steps. There are great areas of absolute desolation

where the valleys are white with alkali, like snow, and even the gray sagebrush is scant; where the sand and the rocks burn day after day beneath the pitiless sun, and no rain falls for more than a year. With only the cruel mirage to guide them, unnumbered hundreds have lost their way in these deserts, gone mad with thirst, torn off their clothing, and have fallen to die when they were only a short distance from water which was unmapped and unmarked. Many have found water that seemed a godsend to them, but which was dangerously full of mineral salts,—and they too have lain down to a horrible death.

Electrical storms of great violence occur in the mountains, with cloudbursts whose waters sweep down the deep and narrow canyons, choking them with boulders and destroying all life in their pathway. Below are the bad lands where travel is slow and difficult. Sand-laden winds sweep over the desert cutting and killing all life in their reach. Of trees, the scrawny mesquit is the most widely distributed. In its search for water it may send its roots forty or fifty feet downward, and its scant shade is ever a boon to the traveler. Here are the pale gray smoke-tree and the leafless palo verde, the shad-scale and the creosote bush with its sticky

leaves and irritating odor. The giant cactus or Saguaro rises in fluted columns, often like candelabra to 40 or 50 feet in height. Everywhere one meets the thorny ocotillo, or candlewood, a variety of bayonet pointed yuccas and inhospitable agaves, and the dreaded cholla, with its uncountable spines. Lizards and rattlesnakes dwell here, and, lurking in the shadows, is the deadly sidewinder. I have found it lively work riding at top speed for mile after mile, leaning from side to side, as I guided my horse in and out through the desert growth. On foot in the hot, heavy sand one can seldom pursue a straight course for any distance, for he must be constantly on guard to avoid a thorny encounter.

The early spring is the desert's resurrection. For a few brief weeks an indescribable multitude of brilliant and wonderful flowers burst into bloom. Bushes that live without leaves now deck themselves with delicate flowers. One may see solid acres of pinkish-purple abronias, or desert verbenas, and everywhere are flowers with which one is unfamiliar. The supreme beauty of the desert is its color. In flower time, who can adequately picture its charm? Later the eye rejoices in the myriad colors of the sand and the brilliant hues of

the rocks over which a faint lilac light is suffused. In the clear, dry air of the desert, distance is shortened and far away details seem near. Violet and purple are the mountains, olive and drab is the desert, with here and there the red and yellow and black of lava rock; but over all, enriching its color, a mysterious veil is drawn. Nowhere else are the sunset colors more vivid and nowhere do they blend with the landscape in such glorious harmony. Clouds of brilliant white and gold and deep rose glow in the eastern sky; purple, orange and carmine linger in the west. Meanwhile the desert is suffused with rose, and its cliffs and mesas are transfigured with heavenly light. As the purple shadows pale to gray, and the silence of the night enfolds the scene, the stars appear, offering their bright companionship to the lonely traveler.

CHAPTER X

THE LAND OF HEART'S DELIGHT

LOOKING backward over many summers in which I have wandered amid the charms of all our states, I ever return in thought to the most alluring of them all, our California. Long will her mountains and lakes, her forests and flowers, remain the paradise of all who seek renewing of mind and freedom of spirit. Here the heart finds its home and joyfully yields again and again to the silent but potent invitation. Whether it be amid the gold and the purple of her southern hills, the opal of her mystical desert ranges, or among the life-renewing summits of her high Sierra resplendent with light, one will wander ever anew and revel in pure delight. Large are the regions within her spacious domain unknown to all save the mountaineer.

To the traveler who seeks a first acquaintance with this glorious country the mountains open their portals with joy. If we enter by a southern gateway, we skirt the Salton Sea, across whose mystic waters the desert ranges loom ethereal in mirage.

Passing clusters of date palms wherever water rises through the sands, we approach Mount San Jacinto, scarred and seared with desert heat, yet crowned with snowy mantle. As we traverse the pass the vast gray mass of San Gorgonio, 11,485 feet, reaches out to cast its spell upon us. We are conscious of a new world of life and beauty, for the very air comes laden with a thousand promises soon to be revealed. Eagerly we scan the landscape clothed with tree and flower to us unknown. What fascination in the green and gold of orange groves, and what surprise in the tall masses of scarlet, white and pink geraniums that everywhere delight the eye. Soon the pungent odor of eucalyptus pervades the air, while climbing roses embower the homes, and luxuriant sweet peas and heliotrope abound. Little do we wonder that many who visit this land of beauty remain to enjoy its charms.

We pause to visit Redlands hidden among its citrus groves and ever-blooming flowers. Above it rise steep, sheltering ridges, once brown of grass, on which the cactus and the white-belled yucca grew, but now with magic draught of mountain water clothed in semitropic verdure. Beyond in heavenly company the everlasting mountains gather. Long will we linger in the sunshine while

the clouds and storms encompass San Bernardino and San Gorgonio, whitening their summits, softening their outlines. Ever will our hearts respond as sunset glow transforms their noble faces.

For years the San Jacinto Mountains had called me, and I had reluctantly passed by. Finally I sought them, taking the railroad to Hemet, and the auto for the long upward climb to Strawberry Valley. Downward over the winding road the eye travels far across canyons and ridges, softened in purple haze, until it seems as if one were a bird floating in mid-air. Arriving at evening I at once started up the trail which winds backward and forward for miles in search of an upland valley. When I reached its trickling, mossy waters, darkness enfolded them, and I lay down by their side. As the moon rose, the long tree shadows wove their slumber spell upon me, and the little people of the forest came to drink and to wonder near their elder brother.

With the early morn and voice of bird awakening, I again followed the trail until it seemed to lose its direction. Soon I left it for the mountains, forcing my way up steep ridges of thorn bush and unyielding manzanita, where progress depended on grasping these waist-high tormentors, throwing

Mount San Bernardino from Redlands, Southern California.

H. C. Tibbetts

Mount Shasta, 14,380 feet, in Northern California.

H. C. Tibbetts

my foot above them, and pulling myself upward. Needless to say one must be clothed for the occasion! On reaching the summit of the range I traversed peak after peak of loose granite blocks that offered many little problems in rock climbing, but reaped increasing reward in the unfolding landscape beneath me. Swinging to the north through snowbanks, I finally reached the sharp terminal summit of Mount San Jacinto, 10,805 feet. All around lay mapped a magnificent view extending from the reds and browns of the desert, with its opalescent Salton Sea, to the green of the citrus groves, and far beyond the gleam of the blue Pacific. Just across the gulf to the north towered the mighty crest of San Gorgonio, while through the pass at my feet, nearly 10,000 feet below, the long trains of the railway slowly writhed like snakes of the desert. Gathering lasting memories of the view, I hastened downward by another route through all but impenetrable chaparral, reaching Hemet by evening.

Poor is the traveler who pauses not at Riverside to stroll up Roubidoux Mountain, from whose summit the landscape fairly smiles in its fruitfulness. In California the mountains are ever in view, but one never wearies of their friendship.

Pasadena without them would be a land of enchantment no more. Ride if you will up Mount Lowe through the live oaks and lilies, while your soul expands with the view. Then you may follow the trail to San Gabriel Peak. Some years before a trail was cut through to Mount Wilson, my progress along the narrow connecting ridge was enlivened by thick chaparral which forced me to struggle along the uncertain dust slides, too precipitous even for thorns to thrive upon. Even an ordinary tourist may awaken as he strolls over the hills at Hollywood or watches the surf roll in after a storm at Coronado. On a sea of deeper blue and purple than his dreams have pictured, he may sail to Santa Catalina, watch the flying fish and peer into the marine gardens.

No true lover of the beautiful can tire of the hills and sea which surround San Francisco. From the summit of Twin Peaks the city and the bay lie mapped beneath one in the sunshine, flecked here and there with passing shadows of the clouds. Again, of a summer morning, one may struggle up their grassy slopes, barely able to stand against the gale that sweeps in from the Pacific laden with whirling mist. Then all is veiled save fleeting glimpses of the scene below. What new delight

there is to stroll over the hills in the city's long park, or among the sand dunes along the coast; and, from the flowery heights above the Golden Gate, to watch the ships set sail for tropic isles of southern seas. It is with mingled feelings of joy and sadness that one leaves San Francisco for the east, for it is like parting from a friend. Looking back at the city from the ferry in the evening, myriad lights lead upward to the summits of its many hills and form sparkling pathways across the darkening waters of the bay. Golden like an orange, the moon hangs low within the east and stars appear to crown the distant mountains.

Enticingly the hills enfold fair Berkeley and its neighboring towns, calling us to wander in their canyons and over their flower-strewn summits. Through streets bordered with geraniums and houses rich with varied bloom, we enter the grounds of the University of California, seeking the shade of the live oaks and enjoying the fragrance of towering eucalyptus trees. Above the Greek Theatre are steep brown grassy slopes that burn in the sunshine. As we surmount ridge after ridge, the waters of the bay broaden and lead the eye through the Golden Gate to the ocean, while the Marin hills loom purple and high upon the

horizon. From the crowning viewpoint of Grizzly Peak we look eastward across wooded canyons and sunny hills toward Mt. Diablo. Then, on smooth grassy slopes affording scarcely a foothold, we fairly slide into Strawberry Canyon and follow it down to Berkeley.

Northward across the bay from San Francisco the trail wanders alluringly upward among the Marin hills into the land of birds and butterflies, everlasting redwoods, and golden-hearted, fragrant azaleas. Here we look down on fairy isles afloat in the blue of the bay, or listen to the call of the purple-robed peaks above us. As we enter the cathedral aisles of Muir Woods, the silence and the power of the eternal enfold us, and our thoughts are lifted into fellowship with the Creator. Upward over the ridges of Tamalpais we go, forcing our way through continuous chaparral, crawling beneath its too-fond embrace, or pulling ourselves upward over the tops of its unyielding tangles; but reaching at last the unhindered views and the vast freedom of the summit. Who would not of choice become a mountaineer in this land on which God smiles?

North of San Francisco along the coast we find the Redwoods, closely related to the Sequoias of

H. C. Tibbetts

ON THE EDGE OF THE REDWOODS IN NORTHERN CALIFORNIA.

the Sierra Nevada. Reaching the majestic height of 340 feet, over 16 feet in diameter, and 1,300 years or more of age, these matchless trees are fast being destroyed to supply grape stakes, shingles and railroad ties. Alas for man that he is not the appreciative friend of the forest! For a few more dollars in their pockets, the guardians of these glorious Temples of God cut and burn until there is naught but utter desolation. When the individual and the nation awaken to a right appreciation of their most priceless treasures, will the finest things in Nature be only a memory? Can future generations feel otherwise than that we were woefully lacking in spiritual vision? The Save the Redwoods League of California is now seeking to preserve the remnants of these wonderful forests, securing strips of timber along the highways in exchange for those more distant. Funds for this purpose have been appropriated by the state, and it is to be hoped that a National Park worthy of the name will be created before it is too late.

If we approach the Pacific by way of a central route, we journey across the deserts of Utah and Nevada, ever in view of distant mountains etherealized in the heat and blending with the white and purple cloudlands of the sky. Nearing Salt

Lake City, the snowy Wasatch refresh us with their pure elixir of mountain air. Perchance it rains upon the Great Salt Lake, cooling and softening its enfolding ranges, over which foamy clouds poise silent in mid-air. Climbing the eastern slopes of the Sierra Nevada we pass through tunnels and snow sheds with no very impressive mountain views. By one route we descend to the great central valley of California through the fine scenery of the Feather River Canyon, and both routes pass through the gold mining belt of the early days. From Truckee on the eastern side of the range we may visit colorful Lake Tahoe, and from its pine-bordered shore steam down the lake to Tallac. In the shallows the clear water is emerald green, but at greater depths it ranges from deep blue to purple. A road winds along the shore of the lake, looping around the head of Emerald Bay, which is walled about with granite. We may ascend Mt. Tallac for its beautiful view and roam over the surrounding glacially eroded country, which is dotted with little lakes. From Tallac we climb the range by auto, and drop down the American River over the historic route of the first emigrants to Placerville and Sacramento.

If we enter California from the north over the

wooded Siskiyous, we linger long in view of Mt. Shasta, pure and magnificent in its robe of snow. Like all our northwestern volcanic peaks it has lost much of its original height, being 14,380 feet, whereas Mt. Whitney in the main range of the Sierra Nevada is 14,501 feet. But Shasta has a more striking individuality, for it rises in snowy slopes 10,000 feet above the surrounding country, while the western height of Whitney is only about 3,000 feet above its base. There are many lava caves and large gushing springs in the region about Shasta. In summer the lower slopes are carpeted with miles of sweet-scented flowers of many varieties, while a multitude of butterflies and of happy insects fill the air with color and music. John Muir made many ascents of the peak, one being in November, when it was robed in deep soft snow and the fierce wind lifted the drifts, hurling them far out in a glistening banner from its summit. Starting from his camp near timber-line about one o'clock in the morning, he worked his way up the steep slope amid the intense cold and the silence of the night. Frequently he sank to his armpits in the mealy snow, but thrilled by the beauty about him, he reached the summit at 10.30 A.M. Although Muir had brought no coat, he remained

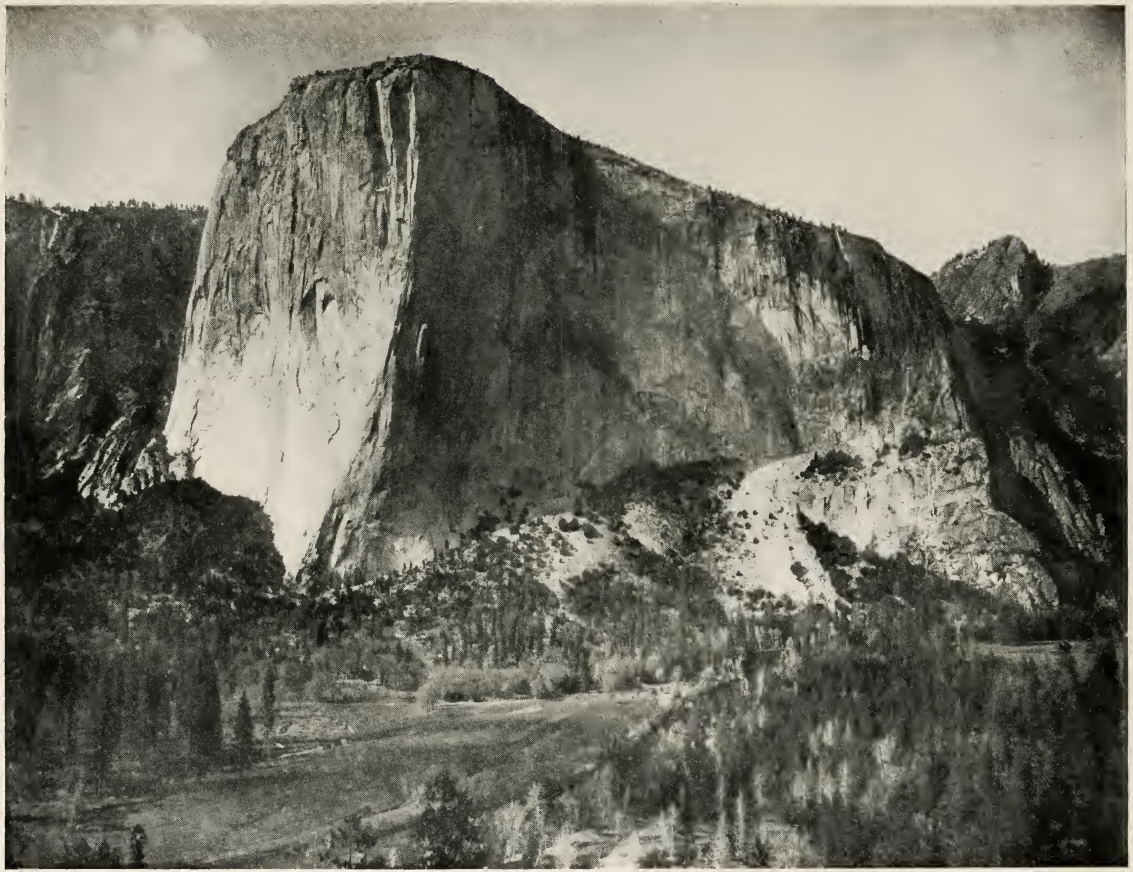
to enjoy the view for two hours until he was forced downward by icy clouds to his camp. The next morning the storm broke and continued for about a week, affording him much enjoyment, but alarming his acquaintances who sent an outfit to his rescue. In the following April, Muir led a party which surveyed the summit of Shasta, and two days later he again ascended with a companion to make barometrical observations. They enjoyed the vast expanse of sun-illumined clouds that filled all the valleys beneath them, and which rose on every hand in peaks and mountain ranges as if they were permanent features of the landscape. Although storm conditions had developed by noon, a final observation had to be taken and Muir decided to remain. Just as they completed it at three o'clock, the fury of the storm was upon them, beating them with hail and endangering their lives by continuous lightning. The temperature fell below zero and the wind threatened to sweep them away. At first they must traverse a long, dangerous ridge flanked by precipices, and darkness had almost arrived. No one who has not encountered a blizzard above 10,000 feet on a mountain peak can realize the difficulty and danger of the situation. Knowing no fear, Muir

would have continued down the icy slope, but his companion refused to attempt it, so they retraced their steps to a group of fumaroles near the summit, where they passed the night. Unable to stand against the storm, they were compelled to roll in the boiling mud and fight for their lives amid its poisonous gases. Frozen, blistered and starved, they long awaited the dawn, when fortunately the storm ceased and they made their way slowly downward to warmth and safety.

CHAPTER XI

YOSEMITE THE INCOMPARABLE

If one is willing to open his heart to the mountains, let him come to Yosemite, for in this temple of God he may enter into their joy. In silent majesty the smooth gray walls of the valley rise for thousands of feet above its flowery meadows. Often their faces smile with softened yellow, as if treasuring the sunshine of innumerable summers. Here one may rest by the peaceful waters of the Merced, while he listens to the songs of the birds mingling with the wind-blown music of the falls; or one may climb without fatigue for hours on precipitous trails, drawn upward by the life-giving air of the summits. Who has not gazed in rapture on the fairy comets of the Bridal Veil now swaying in the breeze, now glittering with rainbow hues as they mingle with the sunshine; and who would not linger amid the golden-hearted, gloriously fragrant azaleas, home of the sunbeams and of the tiniest and most exquisite of humming birds? In the mirror of the placid Merced one loses the



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THE GIANT MASS OF EL CAPITAN RISES 3,600 FEET ABOVE YOSEMITE VALLEY.

cares of the world, while his heart cannot long resist the magic of the great Yosemite Falls. Upward to their snowy fountains let us climb, following the zigzags of the trail through the cooling spray clouds of the upper fall, and finally coming to the very brink where in mighty volume the river leaps forth for 1,430 feet in air. Our very thoughts seem to be swept onward with tremendous power in the rush of the fall, and we feel as if we were being carried downward to the valley on the glistening wings of the water comets. Their white heads are bathed in irised mist, and now and then they pause in their flight, while the wind holds them for a moment and then playfully carries them away.

Reluctantly we leave the deep voiced waters and cross the torrent to the high cliffs overlooking the valley. A grander insight and appreciation of this unique region await us at every view-point, and we soon follow the trail to Eagle Peak, from whose commanding height we behold a vast company of mountains leading to the highest Sierra. Can we not hear their voices calling us to enter their hidden fastnesses? Battling with the chaparral we reach the summit of El Capitan, 3,600 feet above the valley. Great blocks of granite

linger on its brow, and we catch interesting glimpses of the abyss through its western fissures. Returning from a recent trip to the Tuolumne Meadows my wife and I made rapid time for ten miles through the forest, reaching the brink of the Yosemite Fall as twilight departed. Three thousand feet below us the lights of the valley welcomed our return, but there were four miles of uncertain descent in the dark before us. For a long distance the trail tumbles down a side ravine with short irregular zigzags, deep dust and slippery rocks at every turn. It is overhung by live oak and laurel thickets, which temper the sun by day, but exclude all light at night. It was impossible for us to see the trail at all, or even our feet, as we felt our way downward, solely by their aid. At many points a misstep would have resulted disastrously and the way was often in question, but we made steady progress. When at last we came into the open with starlight to speed us for a short distance, we were half way down. But alas! the infinite grandeur of the silent valley was marred by a brilliant and crowded dance floor, constructed for the convenience of the public, where deadened souls reveled to the strains of jazz. To John Muir Yosemite was a sacred

G. R. King

THE HALF DOME FROM GLACIER POINT, YOSEMITE.

temple: may his spirit dwell in peace! At last the moon lit up the eastern sky, as we hastened down the sandy slopes to our tents in the valley before midnight.

Every one who seeks a glorious day's excursion and who thinks little of a twenty-two mile stroll will follow the Clouds' Rest trail to its summit at 9,925 feet. At first we linger amid the Happy Isles, fringed with fern and fragrant azalea, along whose banks the tumbling Merced rushes, tossing its foam bells to the flowers. Soon we come to a trail leading to Sierra Point, just beneath the unclimbed southern face of Grizzly, where we enjoy a unique view of all the finest falls of the valley. Resuming the trail we dash through the thunderous mist clouds of Vernal Fall, climbing beside its feathery jets to the smooth green brow of the fall. We follow up the madly rushing torrent to the mighty Nevada Fall, 600 feet in height, the greatest in volume of all in the valley. Cooled by its spray, we gaze back at the tremendous walls of Liberty Cap; and, on reaching the brink of the fall, we stand silent before its stupendous power. From the Little Yosemite we swing to the left, catching inviting glimpses of the great Half Dome whose highly polished slopes long forbade all climbers

save those who came with rope and staple. Steps and cables now offer a safe pathway to those who would stand on the overhang and gaze downward for nearly 5,000 feet into the valley. At last we reach the storm-worn summit of Clouds Rest. At our feet yawns the far, smooth depths of Tennaya Canyon, offering little hindrance to any one who would become a celestial mountaineer. To the west the Half Dome rises in magnificent guardianship over Yosemite Valley, while to the east the white-robed sentinels of the High Sierra fling aloft their snowy banners. At this elevation electrical conditions are often interesting, and, while enjoying the view, I listened to the singing of the rocks about me and to the crackling sparks from my slightly uplifted fingers.

Another excursion, which no fair walker should find too strenuous, is by way of the Vernal and Nevada Falls and the trail leading past the rushing Illilouette Fall to the commanding view from Glacier Point. Thousands of feet directly beneath us, the valley purples in the softening sun, while across its silent gulf is borne the solemn music of the falls. Better still is the glorious view of the surrounding mountains from above on Sentinel Dome, 8,205 feet. Once we climbed it from

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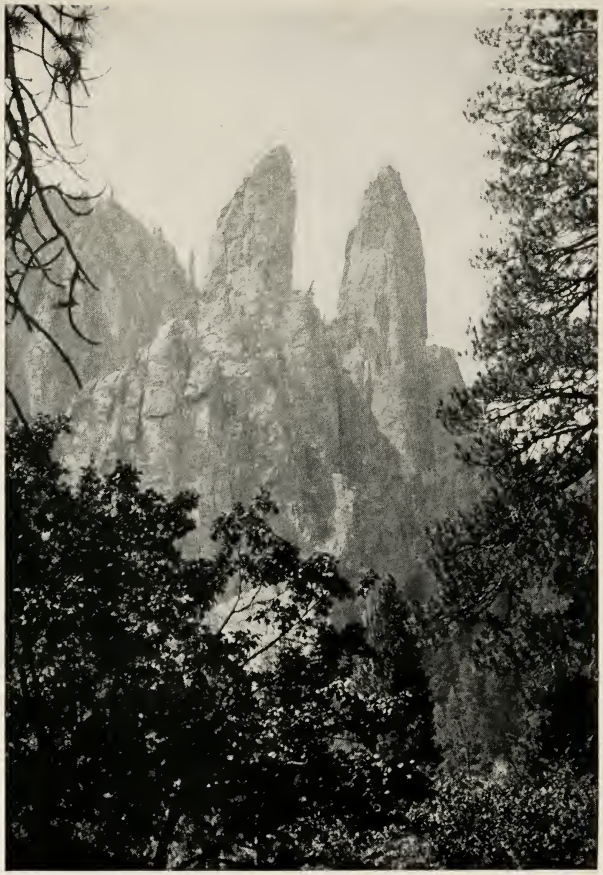
OVERHANG OF THE HALF DOME: TENAYA CANYON.



W. L. Huber

CATHEDRAL SPIRES, YOSEMITE VALLEY.

the north, fighting the thick undergrowth until we reached the glacier-polished rocks of the dome, quite ready to listen to the soothing music of the wind played upon the needles of the Jeffrey pines.

From Yosemite Valley the shortest route to its southern heights is by the Ledge Trail, which starts from the base of Glacier Point and works up ledges and steep ravines to the famous rock which protrudes from the summit of a tremendous cliff. Here many enthusiasts sit or stand and look directly into the depths. Any good walker may continue along the Pohono Trail, which reaches many of the scenic points along the southern rim of the valley. It winds through a fine forest and across lush meadows radiant with bloom, where grouse and deer await the infrequent traveler. At the Fissures one may look down through narrow clefts in the rocks for many hundred feet. From Taft Point and the one adjacent there are magnificent views of the great walls of the valley and of the mountains beyond. From the distant winding river, crag upon crag climbs upward to our feet. At Dewey Point there is another outlook of grand and unusual composition. When we reach the Wawona road it is all down hill to the valley, and

we have reveled in twenty-three miles of wonderful scenery for the day.

No one should omit the Mariposa Grove of sequoias. Before the arrival of the auto we journeyed afoot for 28 miles one day, preferring our thoughts undisturbed as we climbed from the valley and communed with tree and flower on the way. Beneath the cliffs in the cool shade of the forest, we heard the delicious notes of the canyon wren, sounding like a bounding rock on its way to the valley. To understand Sequoia you must listen to him alone. Never approach this oldest and grandest of trees with the noisy, unthinking tourist who comes but to desecrate his sacred temple. Towering far above his neighbors, majestic in the silence of unnumbered centuries, he lives in peace apart from the noise of man. For ages his companions have been the storms and the stars, while only the birds and the squirrels are in his confidence. Rest peacefully in the softened sunshine beneath his mighty arms, or stroll noiselessly with the moonbeams through his vast cathedral aisles. In silence and in harmony with the heart of nature you may hear his message.

Leaving Yosemite some years ago on a more distant excursion, we followed up the Merced with

its amazing rock walls, entered the Little Yosemite, and skirted the shore of Lake Merced. Coming to Lake Washburne, we found it bordered by an interesting slope of polished granite, across which a tiny, wandering crack offered the only alternative to a rapid slide into the deep waters below. To reach this crack, which was not in view, one had to work up the smooth rock by friction, encouraged by the information that it had been traversed before. At last we reached the upper basin of the Merced, enclosed on three sides by magnificent walls over which the various forks of the river foam in lacelike drapery. Ascending the McClure Fork, we climbed for hours to the deep snows of Vogelsang Pass, through which we toiled at 10,500 feet. Then we traveled at top speed down Rafferty Creek to the Tuolumne Meadows, and made camp opposite Fairview Dome and the Soda Springs.

Rising above the meadows are glorious peaks that call us to their summits day after day. To the east are Mounts Dana and Gibbs, commanding wonderful views of the desert, which is clothed in richest browns and purples and threaded here and there with the verdant pathway of a mountain torrent. About us glistens the lingering snow of

the summit while more than a mile beneath our feet lies the burnished surface of Mono Lake and a weird company of volcanic cones, into whose desolate craters we peer in wonder. Beyond the simmering heat-waves of the desert, purple and opalescent mountains mingle mystically with the sky. Silently we follow the wandering shadow of a sunlit cloud as softly, with invisible brush, it deepens the distant color, bringing little islands of the landscape as minutely to our vision as though we saw them through a glass. Down the steep snow slope of Mt. Gibbs, 12,700 feet, we glissade to Mono Pass, where Bloody Canyon with its deep red walls, its sapphire lakes, and its unpaintable flower fields offers an enchanting pathway to the desert.

After a restless night amid the rocks and snow by the rushing headwaters of the Lyell Fork of the Tuolumne, we are off by moonlight for the climb of Mt. Lyell, 13,090 feet. Across its mile of glacier we toil upward, coming finally to the bergschrund, where the steep summit snows open in yawning icy depths before continuing their journey toward the valley. Soon we reach the tumbled granite of the summit, where our toil is repaid by the splendid view, and our thirst is quenched with

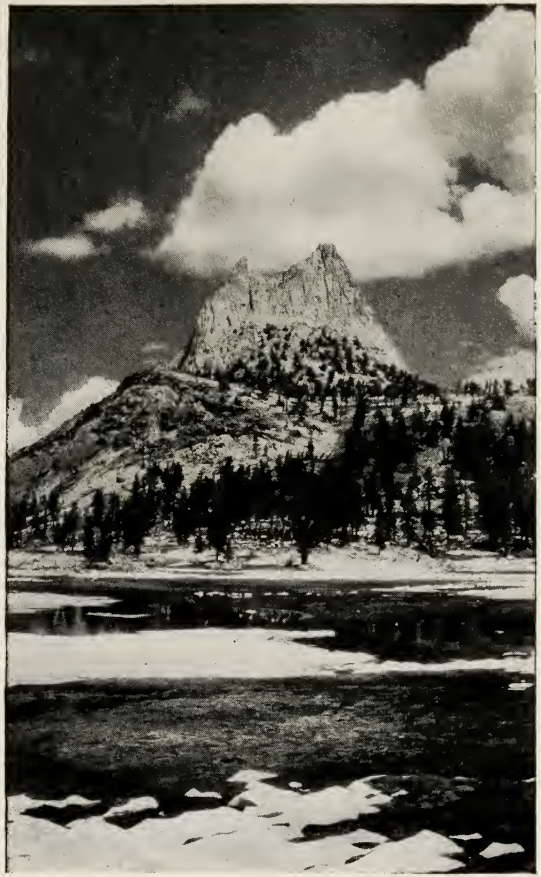
delicious orange juice and snow. Just beyond rises the jagged peak of Mt. Ritter, 13,156 feet, so difficult of ascent from some directions that even John Muir found himself unable either to advance or retreat for a considerable time when he conquered the mountain in the early 70's.

Linking Tuolumne Meadows with Yosemite Valley on the southwest and with the desert on the east is the Tioga road. Formerly the outlet for a mine, it now makes possible an interesting trip by auto from Yosemite to Lake Tahoe. At first we climb out of the valley by the Big Oak Flat Road and then pass through a beautiful forest of gigantic yellow pine and the Tuolumne Grove of sequoias, on whose rich brown trunks the sunlight and the shadows play. There are gorgeous flower meadows and vistas of the high Sierra, and finally Lake Tenaya, surrounded by mountains of white granite. Here are glacial pavements strewn with boulders, and polished domes on which a few trees cling, seeming to grow directly from the rock. Speeding through the high meadows of the Tuolumne, we ascend Tioga Pass with distant views of the snows of Mounts Lyell and McClure and nearer ones of Gibbs and Dana. From the gray and white granite of the high Sierra we come to

striking red peaks flecked with snow, that line the way to the desert. Everywhere great erosion is apparent. After skirting Tioga and Ellery lakes the road plunges downward along the mountain sides into Leevining Canyon. In varied scenery this trip has much to offer.

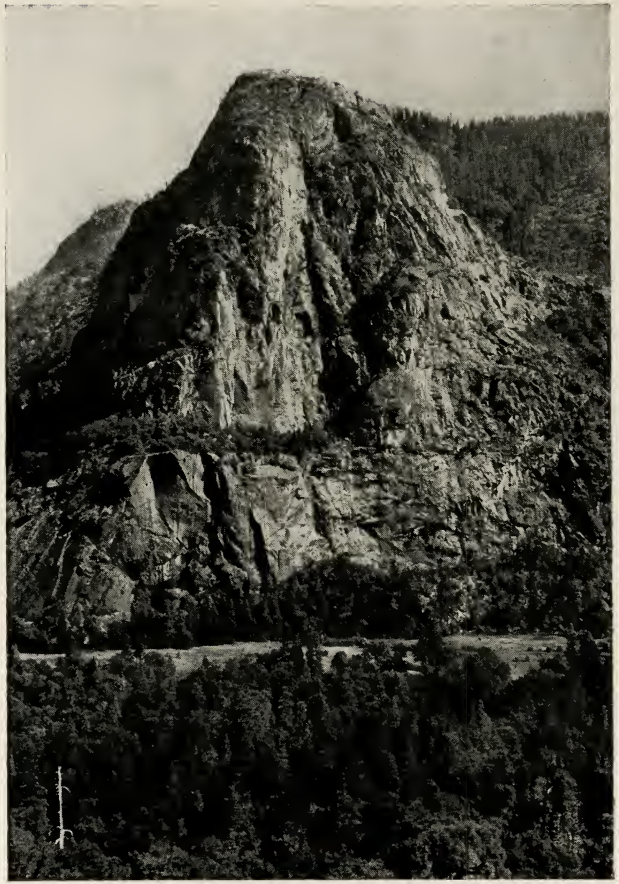
Above the Tuolumne Meadows on the south the gray spires of Cathedral Peak, 10,933 feet, irresistibly appeal to the mountaineer. One July afternoon I followed the Sunrise Trail past tiny ice-filled lakes to the far side of the peak. Here is a tempting vista down the rounded, glacier-polished canyon walls of Tenaya Creek toward the distant Yosemite. I was soon climbing through the chaparral and up the granite slabs of the peak. As I reached its topmost pinnacle a thunder-storm, which had been playing upon the deep-toned organ-pipes of the surrounding mountains, centered upon my peak, and the great rocks about me voiced themselves in a lively musical humming, which often precedes the visible discharge of electricity. Crouching to escape the rain, my hair stood on end while I faced the situation for an hour, and then hastened back to camp amid the glow of a glorious Sierra sunset.

To descend the Tuolumne Canyon with the river



C. C. Clarke

CATHEDRAL PEAK, 10,933 FEET.



W. L. Huber

KOLANA ROCK, HETCH HETCHY VALLEY.

in spring is a new and wonderful experience. Down snowy cascades and over polished granite aprons too glassy to stand upon, the water tumbles and foams so swiftly the eye refuses to follow. Leaping and bounding over talus, and madly whirling itself thirty or forty feet in air as it encounters the rocky pockets and ridges of its pathway, this mountain torrent surpasses all others of the Sierra in interest and wonder. Here by sunlit pools, that mirror the shyest of mountain flowers, is the hidden abode of the ousel, fairy-bird of the irised spray.

Precipitously the canyon walls tower five thousand feet on either hand; and, while I have scaled its cliffs alone, perhaps the easiest route is down its eighteen fascinating miles to the Hetch Hetchy. Until recently no trail dared to enter the canyon, and one had to force his way in continuous battle with thickest chaparral and talus blocks almost as large as houses, which crowd the river in utter confusion. Sometimes the only route down the cliffs seemed to be in grasping the boughs of a tree and descending its trunk; again one had to place his feet against the trunk and work horizontally through the otherwise impenetrable undergrowth. Such slow but well-earned progress delights the

heart of a mountaineer, for he finds problems to solve at every step. High water at Muir Gorge compelled our ascent for 1,200 feet over dome-like granite on which the lizards and rattlesnakes were sunning themselves in harmless content. John Muir preferred never to disturb the peace of a snake, according it the same privilege of life that he himself desired.

When the Sierra Club camps in Tuolumne Meadows, there are trips to the little-known peaks and canyons in the northern region of the park. In this land of the sky, at 9,000 feet, are many beautiful lakes dotted with tiny islets and surrounded by mountain walls. One of the finest of these is Rodgers Lake, on whose rocky shore we camped for several days. We reluctantly left it of an early morning for a memorable day's stroll into the Hetch Hetchy Valley. After the long descent into Pleasant Valley comes mile after mile through the forest on Rancheria Mountain, with striking views of the vast Tuolumne Canyon, and finally the great view of Hetch Hetchy from Le Conte Point.

Partaking of the beauty and majesty of Yosemite itself, the Hetch Hetchy Valley is familiar to comparatively few, for formerly one might

F. P. Farquhar

WATERWHEEL FALLS, TUOLUMNE CANYON, YOSEMITE NATIONAL PARK.

enter its portals only by trail. Through it flows the peaceful Tuolumne, into which there comes tumbling the wild Wapama Fall, 1,700 feet in height and of greater volume than the Yosemite. Up among the live oaks and azaleas of its talus slopes you may bathe with the birds in its spray. Whether you saunter joyfully amid the wild roses, lilies and lupines of the meadows, or lie contentedly beneath the spruces, pines and libocedruses of the slopes, heavenly glimpses await you of Kolana Rock sublimely towering nearly 2,000 feet above the valley. Delicate ferns and flowers embroider its precipices and giant trees have clung to its face for centuries. Divinely radiant, the whole valley rejoices with life. Recently, however, its noble trees have been destroyed, and man is turning it into a beautiful reservoir! If you have gazed in awe upon its mighty walls of living gray, wandered through its deep carpet of ferns and flowers, enjoyed the cooling shade of its giant oaks, or drunk from its life-giving fountains, while your heart grew young amid its air and its sunshine, you have priceless memories that can never be wholly effaced.

CHAPTER XII

JOHN MUIR: LOVER OF MOUNTAINS

JOHN MUIR'S contribution to American literature is not yet fully recognized. Possibly this may be due to lack of acquaintance with the mountains of California which he so wonderfully described; but any lover of the beautiful may find in Muir a friend who will open for him the deepest things in the book of Nature with a truth and a joy that were before unknown. His beauty and richness of thought were the result of his understanding love. He was our most ardent mountaineer and he easily ranks foremost as an interpreter of our grandest scenery. Eventually it will be seen that Muir's greatest service was that of recognizing and revealing an infinite Personality working in and through nature. Never was he confused by the outward appearance, or by an evolutionary process, for his attitude of mind was that which perceived the Creator manifesting Himself in all that is true and beautiful. This insight illumined Muir's heart, and it fills his message with

power and life. Personality in God and man; individuality in bird, and tree, and flower, each created for itself but interrelated with all life.

All great souls are in a measure solitary, for their companionship is with the invisible. With the awakened spirit they may have little true converse. Theirs is an inner world of reality and they deal with causes rather than with effects. As a young man, attending college in Wisconsin, Muir made his great decision. Should he seek success as others would have him, along safe and conventional lines, or should he cast all aside for that priceless freedom of spirit which he had found when alone with nature and with God? There could be but one answer for such a spirit, so he left his acquaintances, for a time to be pitied as a failure. Responding to that silent urge of the soul for a wider experience of life, he started on his thousand-mile walk to Florida and voyage to Cuba in 1867. Though alone, he was never lonely amid the beauty of the forest, or upon the vastness of the sea.

Directed by that divine Providence which ever overrules our life's adventure, Muir yielded to that silent but potent invitation which the great forests and wild-flower gardens of our glorious California

ever extend to the lover of nature, and in 1868 he arrived in San Francisco by way of the Isthmus. Inquiring the route to Yosemite, he set out across the continuous flower fields of the central valley, pausing at night to lie beneath their enfolding bloom, and pressing onward by day toward the heavenly mountains that were to receive him as their own.

With undying enthusiasm and with an unspeakable joy this prophet of the mountains roams over the untrodden paradise of our great Sierra Nevada. Patiently he studies the life of bird, and flower, and tree, discovering their inmost secrets and enabling them to converse with us in a common language. He forms close acquaintance with glaciers, standing amid a storm of criticism as their friend, for he showed how they have carved and polished these mountains and made possible the peace and joy of the valleys. Even the rocks seemed to reveal to him their age-long secrets as he saw in them God's own writing.

In the incomparable waterfalls of Yosemite and other valleys of the range Muir found an unending source of pure delight. How reverently he worships their creator as he listens to their changing music! Each tiny drop to him is a heaven-

born voice, and all are singing in wondrous melody. By night as well as by day he mingles with their spray, on one occasion following a tiny ledge that led him far behind the Yosemite Fall. Here, amid the ceaseless thunder, he watches the moonbeams as they filter through the mist. As he lingers long, some spent comets of the fall are blown inward, acquainting him with their hidden power, and speedily inducing him to depart from their sanctuary. One day when the wintry north wind filled the valley and its voice was heard aloud through every pine like the roar of the sea, Muir saw this great waterfall caught and held in mid air on the arms of the wind. Without visible support the water piled up forming a giant cone seven hundred feet from base to apex, hundreds of tons in weight. After visibly displaying its miraculous power while Muir counted 190, the wind released a feathery host of descending rockets, and swept on in its untiring quest of new experiences.

Early on one moonlit morning the great rock walls of the valley were shaken by an earthquake, and Muir rushed forth from his shelter to view a scene of unparalleled grandeur. Pausing for an instant before taking its irrevocable leap, like the

water on the brink of a fall, a mighty avalanche of granite sprung forth from Eagle Rock far into the air, and then fell in a triumphant arc of living fire into the valley. Before the giant talus blocks had settled, Muir was bounding over them, full of worshipful delight at this re-creating of the mountains and the valleys before his very eyes.

Ever to the glorious, eternal mountains Muir turns with the confidence of a friend. Bewildered in a city, he was always at home when alone in their company. Fear he knew not, for how could they harm one who loved them so deeply? With only a bag of bread and a blanket, living on air and water as only a mountaineer knows how, he seeks their distant summits. In all our wide domain no mountains are more transcendently beautiful. Amid their flowery valleys, filled with giant trees, innumerable lakes and fairy falls, even the unfeeling traveler must linger with delight, while in the higher regions of the range the wanderer will long find solitudes and mountain peaks unspoiled by man. True friendship ever reaches far beyond the lives of those who find it. We feel with him the passion pure for God and his creation. Each mountain peak that Muir ascended calls us still

John Muir, America's Greatest Interpreter of Nature.

G. R. King

Muir Pass, 12,050 feet, Sierra Nevada Mountains, California.

R. L. Glisan

to worship, as in distant years they called their friend and prophet. With him we see the holy morning alpenglow crown many a distant summit, and by his side in spirit led, our hearts respond in glad thanksgiving.

Muir's was a sensitive soul, one often to be misunderstood and at first to find but few friends. Many were destined to find companionship in the greatness of his heart; but, like all who bear to mankind a revelation of the invisible, he had to pass many lonely years before people in general were willing to receive his message. To Muir's vision the Creator was immanent in the world of nature. The same life that was manifesting itself through his own heart was also expressing itself in the birds and flowers and trees. So he often talked to them as to intimate friends. Wistful were his eyes in later years, conscious of the world's sorrow, yet joyous as one who sees the invisible.

He who through love penetrated the veil of nature, becoming its greatest prophet, still speaks to us through his "Mountains of California," "Our National Parks," "The Yosemite," "Travels in Alaska," and "Steep Trails." With him we may roam through the valleys and over the moun-

tains with seeing eyes and understanding hearts, while, perchance, the vision of eternal beauty that was his becomes our own.

CHAPTER XIII

THE KINGS AND KERN RIVER REGIONS

EXTENDING over 500 miles the great range of the Sierra Nevada of California offers the mountaineer and the lover of nature an unsurpassed variety of beautiful and wonderful scenery. No other mountains of the continent are so exquisitely clothed with light, and nowhere is there greater charm of lake and waterfall, of tree and flower; while the multitude of polished granite domes, serrated ridges, and cathedral peaks offer fascinating work for the mountaineer. Unequaled are its marvelous canyons, its foaming streams and its power to awaken in all the true spirit of joy. Range of light, of beauty, of wonder, destined in time to be known and loved by the nation! Year after year the mountains and the flowers have called me westward, and I have wandered and reveled amid their glories in pure delight.

The Sierra Club of San Francisco and Los Angeles holds its summer outings in several of the most important regions of the Sierra Nevada: the

Yosemite National Park, embracing the Merced and Tuolumne basins; the headwaters of the San Joaquin and its branches; the various forks of the Kings River; and the Kern River with its tributaries. Sometimes I have traveled with the club and at other times have shouldered my pack and roamed alone across country. Scenically the most wonderful region in the United States not yet included in a park is that of the Kings and Kern river canyons. It is fitting that the greatest national memorial to Theodore Roosevelt should be the creation of a national park and it is proposed that it be named the Roosevelt-Sequoia National Park.

The southwestern portion of the new park, already set aside as the Sequoia National Park, contains the most wonderful forest known to man. From east to west Roosevelt Park is seamed with the tremendous canyons of the Kings River and its branches; while the Kern River, flowing from north to south, has found its way in another great canyon. This unequaled scenery culminates on the crest of the High Sierra, which for 60 miles will form the eastern boundary of the park. Here is Mount Whitney, 14,501 feet, highest of all the peaks in the United States proper; and there are

scores of summits along the range that are but little lower.

For the motorist who would enter the park in his own car, or for the traveler who would arrive by motor stage, the western approach is at present the most feasible. From the railway points of Fresno or Sanger the road into the Kings lies eastward to the General Grant National Park, where one will pause to view the giant sequoias. It then climbs to Hume, a great lumber camp, where pack animals may be secured for the camp in the Kings River Canyon, or for a more extensive trip in the park. The usual entrance to the Kern River Canyon is from Visalia and Lemon Cove. At Three Rivers the road turns northward to the Giant Forest, which by all means should be seen. By pack train one can then journey south to Mineral King and over Franklin Pass into the Kern; or one may go by way of Cliff Creek, Lost Canyon, Big Arroyo, and the Chagoopa Plateau. From Kern Canyon a trail leads to Mount Whitney.

To reach the park from the east one may travel by rail or by private auto along a desert road through the Owens River Valley, which parallels the mountains. Lone Pine is the outfitting point

for the climb of Mt. Whitney, and for reaching the Kern with a pack train via Cottonwood Pass. Independence is the gateway to the Kings from the east, and one may take pack animals over Kearsarge Pass into this country. By either of these eastern trail entrances steep climbing is required to reach the crest of the range, after which it is all down hill.

With the recent completion of the John Muir trail from Tuolumne Meadows in the Yosemite National Park, south to Mt. Whitney, a very scenic approach to Roosevelt Park is provided, which few have as yet enjoyed. After leaving the Yosemite a remarkable basaltic formation called the Devil's Postpile is passed. Much of the route lies close to the crest of the Sierra, and mountain scenery of a high order rewards one for his exertion.

THE KINGS

Deciding to visit the Kings River region afoot, I took a midnight train from San Francisco, arrived at Sanger early in the morning, and started by auto stage for the great lumber camp at Hume, about 65 miles distant. Traveling upward over the foot hills of the Sierra through oaks, manza-

nita and chaparral, I entered the great forest belt of the range with its magnificent sequoia, sugar pine and incense cedar. At one point the road passes through a section which has been lumbered, and only the gigantic stumps of the finest and noblest guardians of the forest remain. They give one a sense of desolation that is like none other in nature. If people in general could view the consequences of indifference, adequate support for the creation and protection of our national parks and forest reserves would be assured. Stopping at the General Grant National Park, I found a group of people dancing around the largest tree, 35 feet in diameter, singing rag-time! How impossible for them to understand the life experiences of Sequoia, in whose presence even the birds are silent!

By evening I arrived at Hume, seeing in the distance the great Tehipite Dome of the Middle Fork of the Kings. Starting with a horse at moonrise, after ten o'clock, I traveled all night over the ridges, frequently walking to keep awake, but enjoying the long moon shadows of the sequoias and the fragrance of many azaleas. By 4 A.M. I had covered the 16 miles to Horse Corral Meadow, where I left my horse for others to use, shouldered

my 35-pound pack and climbed Lookout Peak, 8,547 feet. It offers an unusual view of the Kings River Canyon 4,000 feet below, with the snow-capped high Sierra of 13,000 to 14,000 feet in the distance. Cutting the trail, I dropped down the very steep slope of the canyon through silver firs and giant sugar and yellow pines to the foaming river. Crossing to its northern side I ascended the sandy floor of the canyon beneath increasingly wonderful walls which reflected the intense heat of the sun. I lunched at the camp opposite the Grand Sentinel, after about 14 miles of travel that morning.

The various forks of the Kings River leading into the heart of the high Sierra comprise some of the grandest and wildest scenery of the entire range. On the South Fork or main Kings River Canyon the surrounding mountains are considerably higher than in the Yosemite, while its falls are generally in the form of magnificent cascades. Most impressive are the North Dome, 8,657 feet, with its sheer white wall, and the tremendous mass of the Grand Sentinel, 8,514 feet, which lifts the eye and holds it with its vast detail for more than 3,500 feet above the river. At the head of the valley Glacier Monument, 9,903 feet, separates

The
Kings River
Canyon,
California.

Rae Lake
and
Mount
Rixford,
in the
High Sierra.

W. L. Huber

the canyon of the South Fork from Bubbs Creek.

Tumbling into the Kings from the south through a narrow cleft in the wall comes the white torrent of Roaring River. Following up the South Fork beneath 3,000 to 5,000 foot walls, we pass Mist Falls with its thundering clouds of spray, and reach Paradise Valley with its luxuriant flowers. We continue along Woods Creek to the John Muir trail, which may be followed north to lovely Grouse Meadows; then over the snows of Muir Pass at 12,050 feet, to the seldom visited Evolution group of peaks. Again, from the Kings River camp, we ascend by the Copper Creek trail to Simpson Meadow on the Middle Fork of the Kings, and follow down its strikingly rugged canyon to Tehipite Valley. Here is Tehipite Dome, one of the greatest rocks in the Sierra with over 3,600 feet of smooth granite.

On this trip I intended to join the Sierra Club in the Kern River canyon, so I left camp after lunch and crossed the South Fork on giant logs which took the place of the bridge that had been washed away. As I wound back and forth in the sun on the zigzags of the Bubbs Creek trail, my pack seemed to increase in weight; but I had only to look back at the charmingly forested floor of the

canyon and up at its mighty walls to receive new inspiration. What temptation to linger long by the foaming cascades of the creek and, resting beneath its fragrant azaleas, to watch the happy water-ousels, diving amid its spray! By evening I was well up the creek and was ready for a nap, as I had traveled continuously for about forty hours without sleep. Amid the glorious scenery, air and water of the Sierra one need feel little fatigue.

Early in the morning I found myself near Kearsarge Pass in company with the giants of the range. In the distance loomed Mt. Brewer, 13,577 feet, while near at hand the great pyramid of the East Vidette guarded the entrance to the new John Muir trail, which I was soon to follow. Before turning south on this trail one should ascend Glen Pass to Rae Lake at 10,560 feet, perhaps of all Sierran lakes the most beautiful. It is surrounded by snowy peaks, and tiny tree-clad islands seem to float upon its placid surface.

Until 1916 no route existed from the upper Kings River region to the head-waters of the Kern, save one impassable for animals over Harrison Pass; but now a section was nearly ready of the great trail named in honor of John Muir. Fol-

lowing up the stream past the needle-pointed Kearsarge Pinnacles, I came to Centre Basin. It shelters a chain of exquisite blue and green lakes, whose water lies invisibly on the glacier-polished rock until one unexpectedly steps into it. As I approached the forbidding heights of Junction Peak, the wild grandeur of the surrounding mountains grew upon me, for University Peak, Mts. Bradley, Keith and others unnamed are all between 13,000 and 14,000 feet in height. Then the trail makes a surprising jump over the snows of Junction Pass, 13,300 feet, which seems to have been the only way that it could cross the Kings-Kern Divide. From the summit of Junction Peak, 13,903 feet, a wide expanse of rugged mountains is seen stretching far to the north, while close at hand is the sheer wall of Mt. Stanford. Down through the snows the long trail drops into the tumbled moraine of Shepard Canyon, where a thousand-foot slope of snow must be surmounted to gain the summit of Shepard Pass at 12,500 feet.

Desiring to climb Mt. Williamson, 14,384 feet, reputed to be the most difficult to ascend of any in the region, I approached its forbidding cliffs by way of Tyndall Basin. Here was the most wearisome travel imaginable, for great ridges of

loose granite blocks were mingled with snow-fields, that were filled with deep cups whose edges failed to support me. Anchoring my sleeping-bag behind a rock in an unsuccessful attempt to escape the incessant wind that seemed to come from every direction, I studied the inhospitable cliffs for a possible method of attack. At daybreak I was on my way over slopes of shale and up a long steep gully of loose rock and hard snow that led to a chimney, which proved to be the key to the mountain. Finding possible holds it was soon conquered, and I climbed over granite blocks and snow to the twin cairns upon the summit, arriving at 7.30 A.M. The view from Williamson is particularly impressive as the peak rises to the east of the main crest of the Sierra, and commands a view to the north of wonderful extent and sublimity. Five miles to the south the giants of the range culminate in Mt. Whitney, 14,501 feet. In the west are the jagged Kaweahs, red in hue and patched with snow; while to the east tremendous canyons cleave the heart of the mountains, carrying their melting snows to the desert. In the foreground the lower peak of Williamson, 14,211 feet, which was said never to have been climbed, in-

vited my attention. Its smooth, beetling crags appeared impossible; but by crossing the ridge leading to the peak, I was able to reach the topmost block of granite. Almost overhanging the Owens Valley, more than 10,000 feet below, I felt as if I were viewing the landscape from an airplane. Returning to the head of Tyndall Creek, I descended toward the Kern River Canyon and spent the evening at the roaring camp fire of the Sierra Club.

Early the next morning I retraced my steps to Shepard Pass and followed down the creek to the desert. Although the canyon walls were grand, I fear a greater impression was made upon me by the merciless sun and the interminable trail that almost climbed a mountain to find its way out by another canyon. No one will forget his experience who has traveled afoot with a pack across the Californa desert. Struggling through its deep, burning sand with only the lizards and the cactus for companions, longing for a cloud or a tree to dim the white fury of the sun that far exceeded 100 degrees, praying for strength to endure the weary miles to life-giving water, I came at last to the oasis of Independence in Owens Valley.

THE KERN

Straight as an arrow for nearly thirty miles the Kern River Canyon draws its clear waters from the highest summits of the Sierra Nevada. Frequently the Sierra Club has visited it by way of Springville and the trail to Little Kern Lake. On this route are many fine individual sequoias that gladden the heart. On one occasion I joined the club in the Kern, journeying by way of Visalia, Lemon Cove and the Middle Fork of the Kaweah to the base of Moro Rock. Then I climbed to the Giant Forest in the Sequoia National Park to view the most wonderful trees that are known to man. Selecting the clear mountain air of 6,000 to 7,000 feet in which to live for thousands of years, the sequoia reaches its greatest development in trees that are 250 to 300 feet in height and from 30 to 36 feet in diameter. In the Giant Forest are several hundred trees which exceed 10 feet in diameter. Here and there a lofty tree has grown over the trunk of a fallen sequoia, whose remarkable wood still remains undecayed. Beneath our feet the centuries have laid a rich brown carpet embroidered with ferns and with mosses. Softly the sunbeams filter into the shady aisles of this

G. R. Bunn

SUNBEAMS AMID THE SEQUOIAS
IN THE GIANT FOREST.

G. R. Bunn

KAWEAH PEAK AND MORAINE LAKE,
KERN RIVER REGION.

mighty forest, and into the soul of the weary traveler Sequoia breathes the spirit of peace.

From the summit of Moro Rock we may look down into the depths of the canyon for 4,000 feet. Northwest of the forest on Cactus Creek, Crystal Cave has recently been discovered. It penetrates a limestone mountain for an unknown distance and has many beautiful formations. From the Giant Forest I took the trail to Alta Meadow, a flower-strewn mountain slope at 9,000 feet, where innumerable streams from Alta Peak offered me cooling refreshment. Leaving the trail I descended through exceedingly thick chaparral into Buck Canyon, having quite enough exercise by the time I had reached the far rim. Continuing by starlight, I slept beneath the great trees of Redwood Meadow. In the morning I climbed the long slope of Timber Gap, 9,400 feet, from which there is a precipitous drop to the little hamlet of Mineral King. From this point the most interesting route into the Kern is over Franklin Pass, where the trail disappears in the snow at 11,300 feet. This is the Great Western Divide, which overlooks a wild, untraveled region of rugged mountains and snowy lakes. Overtaken by darkness I hastened down to sleep by the headwaters of Rat-

tlesnake Creek. In the morning I passed miles of striking castellated walls and flowery meadows on my way to the Kern. After the cold and the loneliness of the mountains I welcomed its summerland, and I strolled southward along the beautiful river to Kern Lake where the Sierra Club was encamped.

One of the most comprehensive views of the canyon is from Tower Rock, 8,512 feet, on its eastern rim. The great trees below seem small and the river a silver thread, while the lake is fast filling with islands that will change it into a valley floor. A little way to the north is Golden Trout Creek, bordered by volcanic cones and lava flows, the home of Salmo Rooseveltii. This remarkable fish gleams with red and gold in the sunshine and has been successfully transplanted by the club. When taken in milk cans to the higher lakes of the range, it retains its brilliant colors, but these disappear when it is brought to lower streams. I have seen an 8½ pound golden trout caught in Moraine Lake.

As we wander up the Kern, its walls grow higher and are more beautifully colored and sculptured. At last we leave the canyon to ascend Chagoopa Plateau, pausing at Sky Parlor Meadow to admire

its flowers surrounded by dark pines, and its inspiring views of Mts. Needham, Sawtooth and the many-colored Kaweah Peaks. We camp at 9,500 feet on the shore of Moraine Lake and wander up to the rim of the Big Arroyo for its wonderful views of snow-clad cirques and of the great canyon below. On the rocky, inhospitable slopes and glacial pavements of these mountains, the foxtail pine lives in perpetual struggle with the winds and the storms. Among the last outposts of the forest, at nearly 10,000 feet, is the juniper, stunted and matted of form and living without visible soil to support it; but of indomitable courage, ofter overcoming the utmost difficulties of existence for more than a thousand years.

One morning I left Moraine Lake for the summit of the Red Kaweah, 13,816 feet, climbing its steep granite blocks that are tumbled together at every angle. Members of the Sierra Club made the ascent by the longer slopes and we all gazed in silence at a wilderness of mountains extending in every direction. What wonderful blues and purples and violets were in the illimitable spaces about and above us! Often in the afternoon the grandeur of the Sierra Nevada is immeasurably heightened by white clouds flung high like surf

above their summits. Often have I longed to awaken the unseeing eye to these glorious inhabitants of a world unknown to many. Nothing in nature holds greater power to uplift the thought and expand the vision than do sun-illumined clouds. In the grandeur of their sunset hues, they reveal the thoughts of an unseen Artist.

No one in search of wild and beautiful scenery undisturbed by man should omit a trip up the Big Arroyo and down the Kern Kaweah to Junction Meadow. At first one fairly tumbles down the tangled slopes from the Chagoopa Plateau into the Big Arroyo; then up its stream to the polished granite pavements, tiny lakes, and the high walls of its ancient glacial cirque. There is no evident route over the divide to the headwaters of the Kern Kaweah, but I found one in 1912 that is practicable for the active mountaineer. After reaching the river I climbed out of the canyon to the north and ascended an unnamed mountain of 13,350 feet, which forms the westerly wall of Milestone Bow. Over the sheer precipice of its northern face I tumbled blocks of granite which tore their way into the silent depths below. Beyond, a jagged arête leads to the curious tower of Milestone Mountain. Rapidly I journeyed down the

R. L. Glisan

SIERRA CLUB ON THE RED KAWEAH, 13,816 FEET.

R. L. Glisan

VIEWING TEHIPITE VALLEY, 4,000 FEET BELOW, FROM TOMBSTONE.

Kern Kaweah Canyon through thick tangles and past unforgettable walls that increase in magnitude as they approach the Kern River. Descending by the side of cooling falls, I reached the mariposa and tiger lily fields and the restful forest at Junction Meadow where the Sierra Club was encamped.

On the following afternoon I started alone for the summit of Mt. Whitney and the desert. At first the long trail goes up the river, and then winds back and forth on the canyon wall, but there are glorious mountains in view to strengthen one. Then for mile after mile it wanders upward to 10,335 feet at Crabtree Meadow, where I spent the night. At dawn I followed Whitney Creek for five miles to the mountain, and was soon on its slope, which is easy of ascent from the west if one follows the route of the trail. A little to the left I found more interesting climbing, but reached the top in time for a late breakfast. Mount Whitney, 14,501 feet, is the highest point in the United States, exclusive of Alaska; and, from its summit strewn with granite slabs and snow, there is an unhindered view in every direction. To the west are the wild Kaweahs, and to the south is the rounded mass of Mount Langley, first climbed by

Clarence King, who supposed it to be the highest of the range. In the north a galaxy of giants cluster around the headwaters of the Kern and Kings, and a multitude of 13,000 to 14,000 foot peaks form the backbone of the Sierra as far as the eye can reach. Fascinating beyond description is the view to the east, for the eye leaps from the snows about one to the burning desert, shimmering in richest purples, reds and browns nearly two miles below. On the far side of the valley winds the green thread of a river, pausing here and there at a cluster of trees before losing itself in the opalescent waters of Owens Lake. Beyond is the region of Death Valley, 276 feet below the level of the sea. To the east of Owens Valley are the mystical and richly colored Inyo Mountains, and in the distance are desert ranges rising ethereally in the sky.

The eastern cliffs of Whitney are nearly perpendicular for about 2,000 feet, and, as I followed along their edge for some distance to the south, there were thrilling glimpses below. I finally came to the deep snows of Whitney Pass and cautiously descended an exceedingly steep and long ice couloir leading into a cirque above lone Pine Canyon. Here is still the gigantic desolation of

H. C. Tibbetts

WESTERN FACE OF MOUNT WHITNEY, CALIFORNIA, 14,501 FEET.

a former age. It was a fascinating journey past colorful little lakes and radiant clusters of mountain flowers to the first brave foxtail pines that have climbed to nearly 11,000 feet. In the 20 miles from the summit of Mt. Whitney to Lone Pine one descends about 11,000 feet, passing from snow banks through all the zones of tree and plant life to the tropical desert. Through luxuriant meadows, by foaming falls, under the shade of Jeffrey pines and red and white firs at 9,000 to 7,000 feet, I pressed forward responding to the welcome warmth and life. The increasing variety of flowers and birds contributed full measure to my joy, while the tremendous walls of the canyon constantly lifted my thoughts to the sublime. From Owens Valley the vertical summit cliffs of the Sierra present a most striking escapement high against the sky for many miles. With backward glances at the mountains, over which a thunderstorm was raging, I struggled across the hot sands of the desert, found my way through the dark-brown labyrinth of the Alabama Hills, and rested at last at the oasis of Lone Pine.

WONDERLANDS OF UTAH AND ARIZONA

CHAPTER XIV

BRYCE CANYON

ONE of the most remarkable formations to be found in our wonderful southwestern country is the erosion known as Bryce Canyon in southern Utah. Distant from a railway and off the main traveled roads, it has long remained hidden in the Sevier National Forest. The simplest way of approach is by a branch of the Denver and Rio Grande Railway, which wanders southward through the central valleys of Utah, reaching at last the little village of Marysvale, where an auto may be secured for the uphill climb of 55 miles through the mountains to Panguitch. It is about 25 miles further to the head of Bryce Canyon.

Perhaps the most interesting, and certainly the most difficult, route to the formation is one which I traversed some years ago in the heat of mid-summer. Leaving the northern rim of the Grand Canyon of the Colorado at Bright Angel Point, we made a rapid run through the yellow pine and aspen forest of the Kaibab Plateau in northern

Arizona, crossed the burning sands of the Kanab Desert, and reached the town of Kanab which nestles verdantly among the vermilion cliffs of southern Utah. We had come over 80 miles before sundown, and were ready for a similar journey to Panguitch on the following day. As all supplies that reach this country have to come south over the route we were following, we supposed the roads would be passable, but at frequent intervals we had to push and lift our car uphill through the deep sand. When it rains, traffic is suspended by mud. As we traveled northward, the red cliffs were succeeded by white, and from the hamlet of Hatch, vivid pink cliffs held our attention for many a mile. The road to the canyon turned east from the main highway some miles to the south of Panguitch and was unmarked through the meadows. There were no trails at the formation and it was almost unknown; but this has recently been changed and facilities are provided for the traveler.

In the future Bryce Canyon will be often visited, for it combines a wealth of color with the most unusual forms. Here are two great hillsides composed of limestone, clay and gravel which have been eroded into fantastic towers 25 to 400 feet in

In
Bryce
Canyon,
Utah.

A. C. Pillsbury

Overlooking
Bryce
Canyon.

G. L. Beam

height, some of them isolated and others linked together in companies. So symmetrical are these ribbed and fluted pillars that they seem almost to have been turned with a lathe, and they often resemble kiosks or taper to minarets. But it is not alone their unique sculpturing that holds the attention, for they are unusually colored. The temples are banded with red, salmon, and yellow that is mixed with pink, and many of the spires are tipped with white. In the morning light the whole scene is bathed in orange and yellow; at noon it is flushed with rosy pink; while at evening from the canyon depths the temples glow with opalescent hues.

The formation is divided by a ridge so low that the whole may be considered as one gigantic amphitheater. If we look across the largest or southern portion of the erosion toward its distant cliffs, we see as it were a vast city of prehistoric ruins; while, from the topmost bastion of these cliffs, we look down upon the stage setting of a fairy opera. Again we see a forest of pinnacles and tiny fingers, ghostly white, rising from the depths of the canyon like stalagmites. Far below is a labyrinth of narrow interlacing canyons leading to slopes dotted with pines and spruces, whose green con-

trasts effectively with the orange-red of the canyon floor. Beyond are colored ridges and buttes that lead to the distant valley and the town of Tropic.

Sliding down the steep and treacherous slope of loose gravel, now made safe by trail, I entered the gloom of a canyon only five or six feet wide, with overhanging walls that are several hundred feet in height. One may wander for hours in this maze of canyons studying the many-colored walls and gazing upward at the narrow ribbon of blue sky; or he may explore the lower slopes that are clothed with pine and manzanita. From below, the walls and towers have all the reality of castles, or elsewhere suggest the architecture of Indian temples. When over all the snow lies soft and pure and distant clouds are lit with rose and gold, we stand in worshipful silence before this vision of a celestial city.

A. C. Pillsbury

WHEN WE SEE THESE MANY-COLORED TEMPLES TRANSFIGURED IN THE SUNLIGHT AND THE SNOW, WE THINK OF A CELESTIAL CITY.

CHAPTER XV

ZION CANYON AND THE COLOB PLATEAU

MOST brilliantly colored and in some ways the most striking of our National Parks, Zion is as yet but little known, although it is destined to become world famous. While it is not on the scale of the Grand Canyon of the Colorado in Arizona, and is more easily comprehended, this Rainbow of the Desert has a peculiar fascination for all who have once seen it.

Formerly inaccessible to the ordinary traveler, it is now convenient and interesting of approach in summer. At Lund, Utah, on the Union Pacific Railway, an auto leaves daily in summer for Zion by way of Cedar City. It is also near the route of the Arrowhead Trail from Salt Lake City or Los Angeles. From Lund we are whirled across the desert through sagebrush, greasewood, rabbit brush and shad scale, while the prickly pear livens the landscape with its bright magenta flowers. Jack rabbits and prairie dogs run to cover as we pass; and, with the increasing heat, the air

gathers whirls of dust that rise in columns for five or six hundred feet above the floor of the desert and travel rapidly along for a mile or two, as if they were waterspouts. Volcanic mountain ranges purple in the distance, or loom with deceiving reality in mirage. If one is fortunate he may see a phantom city, with its buildings and steeples, seeming to lie but twenty miles across the desert sands. We cross a ridge of almost pure iron that is dotted with cedars, while another is composed of black, contorted volcanic rock. In the foothills are great flocks of dirty brown sheep which give Lund importance as a shipping point for wool.

In the background at Cedar City there are glimpses of red and yellow walls, and beyond there are canyons and plateaus about which little is known. A road now leads to Cedar Breaks where one may view the colored erosion of a 2,500-foot canyon. Although it is on a larger scale than Bryce Canyon, the sculpturing is not as fantastic and well developed. After leaving Cedar City on our way to Zion, the lofty Pine Valley Mountains are seen on the right; while on the left we follow for miles the yellow-gray and slate-colored cliffs of the Hurricane fault, which is the greatest of all known faults. Far to the south on the road to St.

George a gleaming patch of cherry-red sand forms an unmistakable landmark, which is seen from the distant heights of the Colob Plateau. Near Toquerville is a cluster of black, volcanic cones; while above the village, lines of vari-colored buttes rise one upon another in imposing array. After a steep ascent, there opens before us an enthralling view of the temples and towers of the Virgin, aglow with marvelous coloring in the setting sun. Towering above is the great West Temple, locally known as Steamboat Mountain, 7,650 feet, the highest in the region. From the banks of the winding, treacherous Rio Virgin, slopes of green lead to a desolate desert region extending to the base of the red cliffs, which are dotted here and there with pine and cedar. Then follow vertical walls of gray and white, streaked with color from a vermilion butte which crowns the West Temple like the upper deck of a steamboat. Its brilliant walls are capped by a rich green forest of pines, the whole making an unforgettable combination of form and color. Peering at us from the heights of the Colob Plateau are the most curious red and white domes; while, across the river, the temples of Smithsonian Butte are painted with soft reds and purples.

We pass Grafton, Rockville, and Springdale, ancient Mormon settlements of stone and adobe on the banks of the Virgin, and on the North Fork near its entrance to Zion Canyon. Tall poplars line the streets, through which flow streams diverted from the river for use alike of men and animals. When the Mormons first came they settled within the canyon, naming it Little Zion; but their dreams of fruitful fields were not to be realized there, for their farms were swept away and covered with sand from the river, which is uncontrollable from cloudbursts. A new era dawned for the valley with the summer of 1917 when it was first opened to automobiles, and fruit and produce were in increasing demand from the farmers. Comfortable opportunity is afforded for viewing the wonders of the canyon by a camp which is located at the foot of the gigantic eastern wall.

Zion Canyon is about 15 miles in length, narrowing from half a mile to only a few feet in width, while its walls are from 2,000 to 3,000 feet in height. The park comprises several unexplored canyons and much wonderful scenery, of which only distant glimpses have been secured; and only a handful of venturesome travelers have visited the heights of the fantastic Colob Plateau. From the

Zion Canyon,
Utah,
from the
Eastern Rim.

Putnam Studios

The Three
Patriarchs
of Zion.

J. K. Hillers

high plateaus of Utah, with their striking white and deep-pink cliffs, to the depths of Zion Canyon, upward of 10,000 feet of sandstone strata is exposed to view. It is often wonderfully eroded into natural bridges, arches, and alcoves, Yosemite-like domes and a multitude of architectural forms; while its coloring is unsurpassed anywhere in nature. Near the entrance of the canyon at Springdale is an unequaled view of the West Temple with its sublime precipice, 2,900 feet of smooth rock. Just beyond, the Towers of the Virgin astonish us with their fantastic forms and vivid hues of red, orange and white. On the right a side canyon is spanned by a natural bridge in process of formation, and the East Temple rises to 7,000 feet. Farther on the Three Patriarchs in crimson robes hold stately court.

From a climber's point of view, few of the sandstone walls of the valley are attractive during the heat of summer. Circuitous routes are necessary to reach the summits of the tremendous cliffs and domes, almost none of which have been ascended. Viewing the West Temple from all sides, I found it promising only from Springdale and, on one of the warmest days known to the region, I climbed far up its heated cliffs. Here was a magnificent

view of the valley, painted in richest browns and reds and enlivened by bright green along the river. Across the eastern walls of the canyon were the upper reaches of the Parunuweap, and in the distance were purple capes and headlands leading to the Grand Canyon of the Colorado. An insufficient supply of water to offset the terrific heat finally forced my retreat to the river.

Awakened in the cool of the morning by the sweet voices of birds, I gazed upward a couple of thousand feet to the summit of a tree-fringed precipice, that seemed almost to overhang my tent. Proceeding up the valley I was continually impressed with the amazing architecture and sculpturing of the canyon. Around me was the beauty of a Gothic cathedral not designed by man. There are immense amphitheaters with colossal buttresses; vast dome-shaped mountains recessed with crypts where the rock has shelled off; and innumerable towers and spires shimmering in pink and in purple. Royal arches are overhung by giant bosses of colored rock, and temples and colonnades are on every hand. On the face of one great cliff is a rectangular doorway, probably 50 feet in height, which resembles the entrance to an Egyptian tomb. In the heart of the canyon is Angel's

ANGELS LANDING IN ZION.

G. R. King

SCULPTURING OF THE WALLS OF ZION.

Landing, a magnificent rock that towers high above the winding river. Another was fittingly named the Great White Throne, now El Gobernador, for above its dark-red base is a majestic wall of white sandstone, tinged near the summit with sunset yellow. In nobility it ranks among the world's greatest rocks. At the bend of the river is a rich red monolith with fluted columns, called the Great Organ; and, seemingly about to touch the sky, at the entrance to the narrows is the Mountain of Mystery.

All the great walls of Zion are unbelievably painted in every shade of red from carmine to rose pink. Above they are of almost pure white, streaked with pink and crowned with green trees and the blue sky. Constantly the colors change, varying with the play of light and shade, and the color notes of one hour are seldom those of the next. Brown and red are the cliffs, while above they are cherry and white. Where streams have fallen the cherry is seamed with black. Elsewhere there are spaces of magenta and maroon and layers of smooth, fresh chocolate seeming as if they were but newly cut. Most beautiful of all are the rosy pinks which liven the walls, or mingle delicately with the white, and more rarely there are golden-

yellows completing a color harmony of which one never tires. Cottonwoods and willows by the stream offer pleasing contrast to the brilliant walls and afford enchanting vistas on every hand. Embroidering the base of one great cliff is a hanging garden of ferns with vines and yellow columbines.

By far the finest effects in Zion are seen at sunset and at sunrise. Through the purple haze the great sandstone walls glow with the most exquisite and unusual colors, and all the peaks are transfigured with the alpenglow. Within this vast temple the silence and the peace of the Eternal often linger, pervading the hearts of all true worshipers.

At Cable Mountain are two 2,700-foot wires which bring down lumber into the valley from the forest on the summit. Before the park was created one could make a rapid and rather thrilling ascent of the mountain by clinging to the sling to which the timber is secured. The only trail which climbs out of the canyon starts from the base of Cable Mountain and after a steep ascent passes through a narrow gorge with overhanging walls of great height. In the country above is a mountain of cross-bedded sandstone laid out like figures on a cake. I forced my way up several tangled heights

in this wild country east of the canyon rim, finding ample exercise but no water. At Hicks Point there is a glorious view into the canyon and of the surrounding country. The whole region is as yet unmapped.

At Raspberry Bend the river loops between precipitous walls that are of varied form and color. Below these are 2,000 feet of bright-red Triassic sandstone, while above there is a thick section of white Jurassic sandstone, which is often followed with pink or blood-red layers. One finds surprisingly little talus at the base of the cliffs, for the rushing river has long since taken it away. Down the face of a 2,000-foot cliff a tiny white waterfall gleams in the sunlight. It pauses on little ledges and then leaps a thousand feet into the wind, which tears it to ribands and bears it to the valley in colored mist. As we gaze upward an eagle sails away toward the distant heights. Just beyond, the stream fills the floor of the canyon, which rapidly narrows until the overhanging 1,500- to 2,000-foot walls nearly shut off the sky. There are dangerous quicksands and the depth and swiftness of the current finally forces back our venturesome horses.

To reach the little-known Colob Plateau, over

3,000 feet above Zion on its western rim, a trip of 35 to 40 miles is necessary. The rough cattle trail to the Lower Colob starts its long steep climb outside the park, and reaches a weird tableland of strangely shaped rocks, resembling a multitude of red beehives. Nearby a thousand-foot pink sandstone cone reminded us of a dish of strawberry ice cream. We explored the heights above the canyon of Coal Pits Wash, forcing our horses for miles through continuously resisting undergrowth and up the most inhospitable walls. We also visited Le Verkin Canyon, riding through Hop Valley with its brown walls and sandy floor. The view at the junction with the canyon is remarkable, the lower gorge of Le Verkin being brown, while the upper walls and domes are vermilion. Nothing could be more striking than this intense color against a bright blue sky with white clouds. At the head of the canyon are Le Verkin Breaks, where great tree-covered masses of earth have slid downward from the plateau.

It was a long, hard climb to the Upper Colob, but eventually we came to miles of quaking aspens and to the welcome waters of Blue Spring. Here were great flocks of sheep which pasture on the plateau and annihilate for years the natural beauty

A. C. Pillsbury

THE GREAT WHITE THRONE OF ZION (EL GOBERNADOR).

of the forest. In order to obtain a comprehensive view of the region, we climbed a distant mountain that overlooks the sources of Zion. On the way were white and pink Sego lilies, and great fields of dandelion and larkspur, which gleamed like cloth of gold embroidered with blue. On the horizon were the richly colored Pink Cliffs.

From Blue Spring it is a steep descent through aspen, yellow pine and manzanita to the long point called Horse Pasture Plateau. On the way at Guardian Angel Pass, we peered into the Great West Canyon, from whose depths there rises a Yosemite-like dome. The softened colors of the sunset were indescribably blending with the painted landscape as we camped at Potato Hollow. Near here is an amazing view into white canyons streaked with bright pink, which no one has explored. From this rolling sea of white sandstone, scarlet and white-walled buttes appear, on whose summits a primeval forest is growing. In the vertical wall of one distant butte is a tremendous archway, hollowed out like a cave. With us was a cougar hunter born on the Colob, who intends some day to find his way into these virgin canyons.

For a few miles more we rode through thickets of manzanita and scrub oak, and then beneath the

yellow pines. Everywhere were the pink, the yellow, and the magenta blossoms of the prickly pear. The view from the final point of Horse Pasture Plateau is rugged in the extreme. Great temples and buttes of varied architecture and coloring are isolated by narrow V-shaped canyons impossible to cross, while far below in the distance we catch a glimpse of the green floor of Zion Canyon.

After a rough journey back to Zion, we left in the quiet of the evening just as the full moon appeared above the mystical towers and temples of the Virgin.

CHAPTER XVI

THE GRAND CANYON OF THE COLORADO

To the lover of the beautiful and the wonderful in nature, no section of our glorious western country makes deeper and more lasting appeal than does the canyon region of Arizona and Utah. Here one may find an unsurpassed variety of color in rock and sky, together with a mystical, sympathetic atmosphere which softens and mingles their hues in an exquisite and indescribable harmony. In the Grand Canyon of the Colorado there are immense spaces filled with colossal architecture and adorned with splendid coloring. If one wanders alone amid its vast silences, sleeps by its surging river, or rejoices at sunset and morning hours on its commanding viewpoints, he will be lifted by its very presence out of his narrowness of life into a fuller realization of the majesty and sublimity of the Eternal. Many of the greatest experiences of the soul and its deepest insights into the heart of na-

ture are found apart from man in silence and in communion with the Creator.

To realize the grandeur of this masterpiece of nature, one must view it with his own eyes, for no adequate conception as a whole may be conveyed by brush or pen. Few have succeeded in picturing its size, its architecture and sculpturing, or its marvelous coloring. The Grand Canyon is a great valley over a mile in depth, 217 miles in length, and 5 to 15 miles in width. It is filled with canyons, temples, and buttes, while in its hidden depths there flows one of the most alluring and treacherous rivers that has ever tempted the heart of an explorer. Within its confines are many mountains, fantastic of form and varied of hue, that glow with sunrise and sunset splendors, or are veiled mysteriously by clouds and storms. To no one are its depths and heights revealed until he has toiled for many weary hours along its wandering, heated trails. One may drop a stone over its sheer cliffs, watching it diminish in size until lost from view, and he may count the seconds while waiting for the sound which fails to reach him. To linger in the presence of the canyon inspires one to noble thoughts, to truer understanding, and to a deepened realization of the beauty and the immensity

of God's creation. Inevitably it measures the development of the person who views it. Many are noisy, but the great of soul are silent.

The spirit of the canyon is never revealed to the tourist who jokes upon its brink and who rides a mule to the river, for true impressions come only with sympathy and with silence. Many are the travelers on the southern rim who have teased old Captain Hance for some tale of his imagination. As is well known the canyon is about 13 miles from rim to rim at El Tovar, and when an unthinking tourist, gazing vacantly upon it, asked the Captain, "Does the canyon grow any wider?" he answered, "Yes." "How much wider has it grown since you were here?" "About an inch!"

Although one may visit many of the points along the rim of the canyon, no one may obtain an adequate idea of its vastness until he has traveled afoot to the river. Mountains of marvelous form and color rise from its depths for thousands of feet, but are almost unnoticed from above. Sculpturing is on so colossal a scale that one fails to realize its magnitude until he attempts to analyze its details. The alcoves and arches of the red wall alone are often 600 feet in height. Tall trees that cluster in the side canyons appear but toothpicks when seen

from above, while juniper and piñon of 10 to 40 feet in height, which here and there dot the red of the temples and buttes, seem but diminutive shrubs. All details of the lower slopes mingle in a general effect which only the experienced eye can interpret. Now and then a bird sails afar over the vast spaces, pausing to rest on a distant crag. Only with wings could one become intimately acquainted with much of the canyon. From a climber's point of view there are very few breaks in the white sandstone wall, and even fewer where it is possible to descend the red wall. Most of the large temples are inaccessible save with rope and the use of staples. Owing to the clear atmosphere, the deceptive power of great distances, and the lack of an obvious scale of measurement, what to the eye seems possible to climb, becomes doubtful when seen through a glass, and impossible when actually attempted. A 700- to 1,000-foot cliff often appears to be but 300 to 500 feet in height, while minor rocks that look climbable prove to be 15 or 20 feet when one reaches them.

In the early morning the canyon lies veiled in blue haze like a sea that is void of detail; but, as the sun peers into its depths, forms and finally colors emerge until a multitude of altar fires glow

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INNER GORGE OF THE GRAND CANYON OF THE COLORADO.

with rosy light, and a glorious company of living, rejoicing colors awaken to life. The beauty of the canyon is always dependent upon the character of its light, and upon its atmospheric effects. In the superabundant light of mid-day the colors may appear harsh and blinding, while on cloudy days much of the canyon is somber of hue. Clouds often contribute most impressively to the beauty of the scene, rising in resplendent mountains and temples over those of the canyon, or more rarely hiding all beneath the rim with an ocean of fleece. On summer afternoons, thunderstorms travel across its wide expanse, creating marvelous effects of light and shade, and hanging rainbows over its temples. When the purple haze of the late afternoon fills the canyon with mystery, all its colors are softened and exquisitely blended. But who can adequately describe the sunset clouds that linger with ever-changing colors into the night?

ON THE SOUTHERN SIDE OF THE CANYON

The traveler who descends the Bright Angel Trail of a summer morning may find his water bottle useful before he reaches the spring at Indian Garden; but he will be rewarded by an un-

folding view of the walls of the canyon that will amply repay his effort. Crossing the Tonto Platform through sagebrush and cactus, he may view the muddy river over 1,200 feet below, where it flows through the somber granite. Returning to the fork of the trail, he may descend its steep corkscrew to the cooling pools of Pipe Creek and the narrow beach at the river. If he returns to the rim by sunset, he may find that the last thousand feet of ascent will satisfy his desire for exercise.

West of El Tovar is Hopi Point, whose extensive view rewards one at the evening hour. Below is a stretch of the river and in the distance are a multitude of gray and green points, including Havasupai, Sublime, and Powell Plateau, reaching out to a sunset sky of purple, gold, and crimson. Long will one linger, enraptured, apart from the crowd, as he watches the vivid pinks and soft purples create a new world in the canyon.

Bass Camp is twenty-four miles westward over a rather rough road, whose one fine view is from the head of Turquoise Canyon. Here is the Grand Scenic Divide and Havasupai Point, where the character of the scenery changes from that of the eastern section, and the granite of the inner gorge disappears from view. On the great north wall

the reds and whites are strikingly contrasted; while within the canyon there are the deepest reds and browns dotted with the green of junipers. To the east the canyon is filled with temples and buttes, but to the west they vanish. On the heights back of the rim are the remains of ancient Indian villages, where one may find broken pottery and arrowheads. Theirs was an extensive outlook across the forest-covered Coconino Plateau to the San Francisco Peaks. After descending a few hundred feet into the canyon, one may look up at prehistoric cliff dwellings, hidden like swallow's nests in the fissures of the rock. Havasupai Point, which is about three miles east of Bass camp by trail, reaches into the heart of the canyon and commands over fifty miles of scenery. It affords unusual opportunity to study the geology of both the north and the south walls, while the great mass of Powell Plateau, and the long arm of Point Sublime on the northern rim, seem near at hand. Just below one on the left is the vivid red and gray of Fossil Mountain. On Darwin Plateau are the cross-bedded sandstone slopes of Mt. Huethewali, while Spencer and Huxley Terraces with the Grand Scenic Divide extend to the river. Much of the granite gorge is open to view and there is a

glimpse of the rapids in the Colorado. No point on the southern rim surpasses the view from Havasupai, although those to the far northeast are of equal impressiveness.

Starting down Bass trail one fiercely hot July afternoon with a companion and an Indian pony, we made good time across the inner plateau and on the steep descent into Bass canyon. Roaming over the Tonto Platform and up many of the side canyons are little herds of wild mules, descendants of animals turned loose many years ago. One is often closely accompanied for miles by these mules, who fearlessly travel in the most impossible places to satisfy their curiosity, but who are exceedingly wary of capture. As we covered the dry and weary miles along the bed of the creek, our attention was attracted by the faulting of the rocks and by the remarkable Wheeler Fold, where within a few feet, the strata are bent from horizontal to vertical. Finally the dark-brown gorge becomes deep and wild, and impossible to follow to the river, so we turned to the left along the Tonto Trail to where the cable crosses. It was almost dark within the heated depths of the canyon and we were much in need of water. Cautiously descending the black, volcanic rock, which rises

sheer from the river, we secured a bucket of the thick muddy flood that was rushing past us; but our pony refused to recognize it as water, preferring to chew cactus all night. After an exciting but ineffectual attempt to cross the river we lay down to await the morning. All night the heat was terrific, forbidding any clothing, but the darkness was dispelled by a great moon which created a new world of light and shade among the temples of the canyon.

At daybreak we fed and watered the pony and my companion hitched him to a twisted tree at a safe distance from the cliffs of the river. We then worked the primitive cage across the cable for several hundred feet, finding all the exercise we desired in climbing the sag to the opposite bank. After following the river toward Shinumo Creek, we ascended its canyon to the side of an ancient Indian garden, where more recently fruit and vegetables were raised for parties who visited the northern rim. Here we found a note left by a solitary traveler, who hoped his life would be spared to reach one of the Mormon settlements beyond the desert to the north of the canyon. Considerable prospecting has been done in the side canyons on both banks of the river, where copper

and asbestos have been found. At every cloudburst boulders are swept down these canyons into the river, causing its many rapids which imperil the life of the explorer. We found the tree-fringed pools of Shinumo Creek cool and refreshing, although they were red with sediment. Returning to the cable, we hastened across to find that our pony had stepped backward over a ledge only a few inches in height; but, instead of stepping up again, he had pulled on the rope until choked to death. Shouldering our packs we started to climb out of the canyon, but the heat was so intense that our progress was slow and our water was soon exhausted. Coming to a deep basin in the rock we found water which it was easy to slide into, but which we could not have climbed out of on account of the steep, smooth slopes which surrounded it. Struggling on with difficulty my companion finally found a little stagnant rain water, filled with insects, which he believed saved his life.

To the east of El Tovar we may travel for about fourteen miles to Grand View through a forest of piñon and juniper, where the air is often heavy with the odor of the creosote bush. No visitor to the canyon should omit the extensive outlook from Grand View Point. Here the eye wanders over a

vast area of temples and follows the eastern wall of the canyon with its many fine viewpoints to the mystical desert beyond. Throughout the day the scene is painted with an indescribable variety of changing colors. Brilliant clouds gather above it in the afternoon, while here and there it is hidden from view by thunderstorms that hang rainbows over its temples and brighten its colors to more glorious life. Divinest of all is the evening hour when the mesas are mysteriously enfolded in soft purple and the temples are holy with heavenly rose pink.

One July morning I started down the Grand View trail, finding its outlooks fine and free in comparison with trails which are boxed in. Crossing the mesa which is strewn with blue and green from an abandoned copper mine, I entered a limestone cave on the brink of Cottonwood Canyon. By candlelight I continued for a quarter of a mile, finding some high passageways but few stalactites. Descending the cliffs in front of the cave for a thousand feet, I reached the creek and finally the granite gorge of the river, which I followed for some distance to the west. Returning to Grand View at sunset, I beheld a great rainbow arching over the canyon from rim to rim.

Many years before I had followed the incomparable eastern rim trail from Hance's Cabin to Zuni Point. Now that the canyon has become a National Park this trail should be extended from Grand View to Navajo Point. Near its beginning there are fine vistas down Hance Creek and Red Canyon, which are separated by a strikingly red ridge. From the final rocks of Moran Point there is a wonderful view, but from Zuni Point, 7,284 feet, it is even more extensive. The eye follows the cliffs of the desert to the north and embraces a vast area of the canyon. As one listens he hears the roar of the Hance Rapids thousands of feet below.

Shouldering my sleeping bag at Grand View, I strolled for twenty miles through the yellow pines of the Coconino Plateau, reaching Navajo Point by evening. Nearing my destination I came to the old Tanner Trail, where one may descend to the river and work his way north to the mouth of the Little Colorado. From the height of the nearby point I enjoyed a distant view of the San Francisco Peaks rising over a wide expanse of forest; and from its southern rim, I had a thrilling view into the depths of the great adjoining amphitheater. At last I reached the extremity of Navajo Point,

7,450 feet, one of the highest on the southern rim, from which there is a wonderful panorama about three-quarters of a circle in extent. To the northeast it overlooks a plateau of piñon and cedar and the volcanic cone of Cedar Mountain. Just beyond is the Painted Desert, with its lines of colored cliffs and its atmosphere of mirage and mystery. Cleaving its surface as with a knife is the Canyon of the Little Colorado, 3,000 feet in depth. This is the Navajo country, stretching for a hundred miles to the San Juan, the Rainbow Bridge and Navajo Mountain, 10,146 feet, which weirdly looms in the northern sky. To the northwest are miles of beautifully sculptured and vividly colored buttes and temples, which cluster at the head of the Grand Canyon and have rarely been seen by human eye. Across the river to the west are Vishnu Temple, Wotans Throne, and the great headlands of the Walhalla Plateau ending in Capes Royal and Final. In the distance the river is hidden by many long ridges. Looking down into the very heart of the canyon I followed the river along the Palisades of the Desert to the mouth of the Marble Canyon. When I moved, a startled bird darted into the abyss, cutting the air with a whir like that of a falling rock. Then a toad

hopped fearlessly near to the brink, but instinctively refused to take the one more fatal hop, preferring to rely on my appreciation of his common right to life.

It was the sunset hour and the silence of the evening filled me with its peace, while the sublime glory of the changing sky uplifted my spirit. The sun lingered over the canyon livening its purple haze with visible golden rays; then it dropped behind a cloud, painting the edges with richest gold, and illumining the great capes fifty miles to the west. In the east the Painted Desert grew dim and purple, while its Echo Cliffs, 400 to 1,800 feet in height, turned ghostly white. Then came the miracle of the alpenglow, when the desert bloomed again in color and its cliffs flushed with rosy pink. In the north the castles of the clouds were white and gold, with crown of rose; and over Wotans Throne in the west, the deepest cherry, carmine and pink lingered in such richness and power as to suggest a Wagnerian opera. Slowly and softly one color after another withdrew from the heart of the canyon, leaving it veiled in purple and gray; but the winding silvery thread of the river was visible long into the night. As I lay watching the stars appear, the desert was weirdly

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GRAND CANYON OF THE COLORADO AND THE PAINTED DESERT FROM NAVAJO POINT.

awakened by distant lightning, and I was lulled to sleep by the voice of the wind in the pines.

In the early morning the dark-gray cloudbanks of the east were gradually lit, and then flamed with pink, until the crimson globe of the sun peered over the horizon. Then the first sweet bird song rose from the canyon. First of the colors to awaken were the purples and the dark reds; and, as the western sky grew pearly, all the distant points smiled with the joy of the morning. Rose crept down the canyon walls, the reds and browns appeared, and light filled all the world below. Rising through the worshipful silence, I heard the faint murmur of the river. Two birds soared high across the western sky, for day had come!

ALONG THE NORTHERN RIM

One of the most interesting and unusual routes to the Grand Canyon is from the northwest by way of Zion Canyon in southwestern Utah. Zion is 100 miles from a railway, and 170 miles by road from Bright Angel Point on the northern rim of the Grand Canyon. We had paused to view the wonders of the Rio Virgin country, but were ready to start on our desert journey from

Hurricane, Utah, early one July morning. Although the road was decidedly unsafe for high speed, and dangerously lonely in case of a breakdown, the intense heat of the desert persuaded us not to linger. Our first water was at the Indian reservation at Pipe Spring, and we decided to follow the new road which the Indians had been constructing toward Fredonia; but it soon became too difficult to permit turning back, and finally ceased altogether. We were able to force the car across the desert over sagebrush and cactus, but we had to push and lift it over the frequent washes which were ten to fifteen feet in depth with crumbling banks of sand. Fortunately we at last reached the old road, arriving at Fredonia, Arizona, for lunch. Near the town there are rocks of green and brown leading to vermilion and then to white cliffs.

Beyond Fredonia we crossed the heated sands of the Kanab Desert, from which the dust whirls rose like fountains high in air, and then traveled rapidly along with circular motion. As we climbed for seven miles to the Kaibab Plateau, which is locally known as Buckskin Mountain, the air grew cooler and the desert and mountain views became finer. Our western deserts owe much of their charm to the mountains that gather around

them. On their soft and colorful outlines the eye lingers in peaceful contemplation. To the north were line upon line of cliffs bounding the high plateaus of Utah and representing 10,000 feet of strata. We traveled for 65 or 70 miles up hill and down through a forest of yellow pine, spruce and aspen, which is under the supervision of the Forest Service. Here on the Kaibab, and in the Coconino forest south of the canyon, is the greatest stand of yellow pine in existence. It ought to be permanently preserved for the nation. We made rapid time through a succession of long and narrow natural parks, the largest of which is DeMotte Park, ten miles in length. Curiously awaiting our approach were many deer that often mingled with the herds of cattle, for the Kaibab has been a great range where cattle companies operated on a large scale. We saw brown squirrels with snow-white tails, said to be found nowhere else in the world. By evening we reached camp at Bright Angel Point. A route by trail to the northern rim has recently been opened by the construction of a suspension bridge across the Colorado near the foot of the Bright Angel Trail. From El Tovar to the Kaibab there are thirty never-to-be-forgotten miles of scenery and of toil.

The northern rim of the Grand Canyon offers the most sublime scenery of its kind that is known to man. It is destined to become world famous. Clustered here are most of the great temples of the canyon, while the most extensive views are obtainable from its little-known points, which are a thousand feet higher than those of the southern rim. One overlooks the entire southern plateau with the picturesque cones of the San Francisco volcanoes, and those of Logan, Trumbull and Emma in the west. From its eastern points are views unequaled in extent and beauty of the painted desert. The only road in the entire region is the one by which we had come to Bright Angel Point; and all other points must be reached by trail, or by forcing one's way through forest tangles.

Extensive travel on the Kaibab Plateau requires a pack train for provisions and water, and a guide who knows something of the country. One may easily lose his way when off a trail, for the plateau is thickly forested and is broken by hills and little valleys called glades, which resemble each other very closely. The problem on either the northern or the southern rim of the canyon is to keep within safe distance of a water supply for the horses. Drinking water must be carried by the

traveler, for the tank which he reaches after a hard day's journey may be only a mud hole, or scum-covered water in which wild cattle are wading. Some of the points which we visited extend into the canyon for several miles, and were so inaccessible that it was claimed only about a dozen travelers, including the U. S. Geological Survey, had stood upon them.

From the end of Bright Angel Point it is well over a mile in vertical distance to the river. Within this abyss a multitude of many colored temples and buttes rise for thousands of feet above the deep canyons at their bases. Architecturally the walls of the Bright Angel Amphitheater are interesting, while the vivid hues of their varied strata mingle in a vast and ever-changing landscape of color. Five thousand feet below, Bright Angel Creek flows through a great canyon whose alcoved walls are adorned with pagodas. When the roar of its rapids reaches us, it has become only a slender thread of sound. If we roam geologically from the rim to the river, we first see a vertical wall of grayish-white Kaibab limestone, resting upon a similar wall of white cross-bedded Coconino sandstone. Then follows a deep red slope of Supai shale and sandstone, which acts as the paint-pot

of the canyon, for with every rain the great wall of blue limestone beneath it is freshly colored. This wall is consequently known as the Redwall limestone, and within it are found splendid alcoves and caves. It is the most difficult to climb of any in the canyon, as it has very few breaks and is of great height. Below are the bluish-gray and green slopes of the Tonto shales and sandstones, the lowest of which is the dark-brown Tapeats sandstone. For 1,300 feet, dark and somber granite, schist and gneiss clothe the inner gorge; but in some sections these are varied by the rare red, purple and magenta Algonkian shales, sandstones and limestones. These non-conformable rocks represent about 12,000 feet of strata which were tilted and faulted and later eroded away.

Immediately west of Bright Angel Point is the Transept, a side canyon over 3,000 feet in depth and two and a half miles in length. Architecturally its walls are remarkably symmetrical. Below they are deep-red, dotted with trees, while above they are grayish-white crowned with the green of the Kaibab forest. A few miles beyond is Fossil Point with many temples clustering near.

Powell Plateau is 35 miles to the west by forest trails, while Point Sublime is about halfway.

Leaving on horseback in the afternoon, we traveled through a splendid park-like forest of yellow pine, following a trail which had been wantonly blazed on almost every large tree. One felt that the forest was disgraced and that the ordinary intelligence of the traveler had been disregarded. We followed the lupine-flowered glades of the Walla Valley, arriving by sunset at the end of Point Sublime. Storm clouds were sweeping westward across the southern plateau; while, peering into the canyon like a great eye, the sun sent its visible rays into the gray and purple depths below, weirdly awakening their hidden colors. Sublime is 7,464 feet in height and commands about 30 miles of the canyon, which is here a dozen miles in extreme width. Over a ridge to the east is the great valley of the Hindu Amphitheater, beyond which the river is visbile. Farther still are miles of temples and buttes, bounded on the horizon by the purple arm of Cape Royal. On the southern wall is a symmetrical array of points separated by V-shaped canyons. Beneath us to the west is the long ridge of Sagittarius and the Scorpion, and nine miles across the canyon is Havasupai Point, which forms with Point Sublime a color boundary, to the west of which a deep-brown sandstone appears in the

lower strata. Terminating the western view and pushing the river to the south is Powell Plateau, the greatest of all the promontories of the canyon. Silently we watched the gold and orange of the sunset turn to crimson fire, while darkness veiled the depths below. Finally the distant peaks were outlined in pure lemon, while the clouds were flushed with pink. Not until color photography finds a way to picture these canyon sunsets will their glory be adequately recorded. We fell asleep amid the prickly pear and yucca of the point, while we watched the lightning playing among the San Francisco Peaks. Once in the starlit night I awakened to see a flickering light across the silent void of the canyon to the southeast. Our lingering campfire had been answered by some wanderer halfway down the southern wall. In the early morning, swallows were skimming swiftly over our heads and cleaving the air with a whirr like that of stones which we hurled into the abyss.

Cutting across country and startling deer and grouse on our way, we encountered many side canyons that forced us to the north. After skirting the magnificent Shinumo Amphitheater, we rounded the head of Muav Canyon and camped above the slender neck of Muav, or Powell, Sad-

dle. Here was another evening sky of beautiful composition and variety. Golden rays beneath a purple cloud rested on a desert volcano, baptizing it anew with fire. Then the crimson sun hung like a vast globe over the mountains, and soft rose-purple filled the canyon. After the sun had set, tiny clouds of purple and crimson floated in a sky of delicate saffron, green and pink, while the east glowed with rosy clouds in a soft blue sky.

In the morning we made the steep descent of 1,200 feet to Muav Saddle, and then climbed to the plateau, which is about five and a half miles in length by two in width. Most of its points remain practically unvisited, some of them being protected by brushy tangles, but there are fine groves of yellow pine and magnificent viewpoints to compensate one for the effort. At least two of these should be visited: the high northwest outlook and Dutton Point. From the former we see the river, flowing from the south, turn to the west; while the granite disappears, leaving the Tapeats sandstone next the river. In the foreground is Tapeats Amphitheater, a dozen miles in diameter. From the gorge of Kanab Creek, which enters the Colorado on the north, to Mt. Trumbull and the cinder cones of the Uinkaret, is the wild and deso-

late Kanab Plateau. On the north it is bordered by the Vermilion and the Pink Cliffs; on the west is Vulcan's Throne at the junction of the Torroweap; and a hundred miles away on the northwestern horizon is the great West Temple of the Virgin. Across the canyon from the Kanab the plateau is severed by the sheer walls of Cataract Canyon. Radically different from other views and of surpassing interest in its geological revelation, this great outlook will eventually become famous.

Crossing Powell Plateau to the southeast we reached Dutton Point, 7,555 feet, from which there is one of the most comprehensive and satisfying panoramas of the canyon. To enjoy the view in its entirety one should visit a point half a mile to the southwest, from which the river is visible for the unusual distance of about ten miles. The eastern view suggests a tremendous amphitheater. In the foreground are the red and tree-green slopes of Muav Canyon; beyond are Holy Grail Temple, King Arthur and Guinevere Castles, and finally the great wall of Point Sublime. Havasupai Point stretches toward one from the south, and Wheeler Point at the extremity of Powell Plateau is seen on the southwest. Vertical limestone cliffs of great height are directly beneath one, and the inner

gorge of the river is lined with black, contorted volcanic strata. The vast scene shimmered and burned in such terrific heat that we were forced to hide with the birds in the scant shade of junipers which overhung the brink. Sublimely beautiful was the transformation of the late afternoon, when the whole canyon glowed with rosy pinks and purples, and the sky turned to gold and crimson.

Unforgettable scenery rewards one who views the canyon from the southern and eastern points of the great Walhalla Plateau. Here we looked down upon many magnificently colored temples and buttes with which the traveler on the southern rim has little or no acquaintance. It is a long ride across the plateau and down through the Walhalla Glades, locally called Greenland, to Cape Royal. On the plateau we examined some interesting Indian masonry which forms a room beneath a great rock; and just before reaching the finger of the cape, we turned to the right underneath an overhanging limestone cliff, where there is a very welcome dripping spring of clear, cool water. Close to the final point there is a natural bridge or window through which we looked down to the river, cutting its way through the reddish-purple Algonkian strata. It is here that the Colorado,

flowing from the north, turns to the west for the remainder of its canyon journey. There is a splendid array of points along the southeastern wall of the canyon, culminating in the great headland of Navajo Point. Looming like Mexican volcanoes, the San Francisco peaks are fifty miles to the south; while close at hand is Wotan's Throne, a magnificent butte of great height. Many fine temples are seen to the west, and we are directly above Vishnu Temple, which is over 5,000 feet in height and is architecturally the most beautiful in the canyon. As we lingered, drinking in the grandeur of the scene, a storm broke over the desert, veiling all from view except a high white mesa that glistened in sunshine on the far horizon. So impressive was the view that we were undisturbed by electricity which crackled on our finger tips.

About five miles to the northeast is Cape Final, 7,919 feet in height. The view from its various fingers covers the whole expanse of the canyon from Cape Royal to the Vermilion Cliffs at Lee's Ferry in the north. Jupiter, Juno, Venus and Apollo temples are at our feet and the Palisades of the Desert tower above the river on the east. From this region opposite the mouth of the Little Colorado, we had the most extensive views of the

non-conformable Algonkian strata which Walcott studied for a memorable winter. It had rained and all the temples and buttes were clothed with rich red, while over the cliffs of the Painted Desert hung a vivid rainbow. Then Navajo Mountain peered through the clouds a hundred miles away. Although it has rarely been visited, Final is one of the most important and satisfying points of the canyon.

Naji Point is the next one to the north, but its view is not equal to Final or to Atoko with its great eastern outlook on the canyon and the desert. We reached Atoko Point one afternoon at six o'clock, the ideal hour for color effects. Siegfried Pyre and Gunther Castle were aglow with sunset fire, while the purple shadows had begun to rise from the hidden depths of the canyon. Eight miles across the great gulf the canyon of the Little Colorado cleaves the desert with walls which reach 3,600 feet in height between Cape Solitude and Point Desolation. Northward the mighty wall of the Marble Canyon extends for mile after mile, bounding the Painted Desert, which gradually rises to the distant high plateaus of the Navajo and the Hopi Indians. Usually shimmering in heated mirage, this land of enchanting desolation now lay

wonderfully clear 2,000 feet below us. After the rain, soft cloud shadows floated over its many colors, blending them as upon the face of an opal. Thirty miles across the sands was the long line of the Echo Cliffs, while sixty miles away the White Mesa gleamed against the sky. Gradually the desert glowed with exquisite pink, contrasting with the brilliant whiteness of the clouds, which floated in a sky of delicate blue and rose. Drawn upward like a great curtain from the depths of the canyon, the shadow of night traveled slowly across the face of the desert subduing its colors. Line after line of cliffs unnoticed before were suffused with deepest pink for a few moments, and then vanished within the advancing shadow. High over all, the clouds gathered in a great crown, radiant with gold. In the west the sun disappeared in a purple cloud, changing it to living gold, and after it had set, little islands of brilliant color lingered in the sky. Meanwhile the desert reposed in a soft harmony of purple and rose that deepened its elusive mystery. Finally, the great white and gold thunderhead above it changed to living rose-pink, filling one with a sense of infinite majesty and of transcendent glory. Then through the absolute silence came the vesper song of a little bird. As I lingered

alone above this tremendous abyss, while earth and sky were transfigured by an unseen Artist, I could long for nothing more perfect in nature. We spent the night on the brink of the canyon, now and then awakening to gaze into its mysterious depths, and to watch the distant lightning lift for an instant the ghostly veil of purple that lay upon the desert.

Seven curious deer were watching us as we awakened, and many grouse took wing that morning. North of Atoko is a minor point, followed by the highest one on either rim of the canyon. No Geological Survey bench mark records its 8,500 feet. Unnamed on the map, it has recently been called Point Imperial. Although it projects only a short distance from the Walhalla Plateau, its magnificent view ranks with the best at the canyon. The striking amphitheater between it and Atoko is the head of Nankoweap Valley; and here are six great unnamed temples whose roofs are of the richest dark-red clay, gypsum and shale imaginable. With every rain their walls are freshly painted with intense color. The view extends from the northern plateaus over the Marble Platform, and eastward to Navajo Point. Like the open sea was the solitude of the desert. The sun filtered through the clouds in shafts of light which traveled like search-

lights over its purple floor, bathing its little volcanoes in fire. The wall of the Desert Façade glowed rosy red, and an opalescent haze lingered over the Marble Platform. To the north the Echo Cliffs turned pink against the delicate blue of the Kaiparowits Plateau.

The last great point to the north is the wooded height of Saddle Mountain, which is joined to the Walhalla Plateau by Powell's Saddle. Here the all-but-vanished Powell Trail wanders downward over the Algonkian to meet the Tanner trail, which starts from the opposite rim near Navajo Point. Cattle thieves once came over these trails from the southern rim, for in this wild and unfrequented region brands could be changed in safety. The view to the north from Saddle Mountain is over the desert of the Marble Platform, through which the Colorado has cut the Marble Canyon. Near Lee's Ferry its walls are only 200 feet in height, but they gradually increase to about 3,600 feet where they join the Grand Canyon. No temples or buttes are found within its depths, and its walls often approach the vertical.

One July morning we started down the precipitous slope of the Walhalla, forcing our horses through the thick growth of yellow pine, scrub

oak and manzanita. Everywhere we encountered the thorny wild locust with its clusters of pink and white flowers. Leaving Powell's Saddle by slopes on which it often seemed impossible for our horses to follow us, we fought our way downward for several thousand feet. Conquering the cliffs and emerging from the tangle, we traversed steep ridges where herds of fifty to a hundred deer come in winter to pasture among the buckbrush, cedar and sagebrush. Down over Saddle Mountain the cattle of the Bar Z ranch wander, and so great is the region that the cowboys await the snow to track them for the round-up. Doubtless many must perish in the storms. Hawks and eagles were soaring above us while we studied the Great East Kaibab Monocline extending northward to the Paria Plateau, which is 3,500 feet below the Walhalla. For many miles we speeded our horses downward over the burning sands of the Marble Platform, dodging the piñon, greasewood and cactus, until we reached the brink of the Marble Canyon. Threading our way northward through mescal and yucca, we finally crossed an area of utter desolation and of withering heat that all but killed our horses. Pausing on a point, we looked down 3,000 feet upon the muddy Colorado, rushing through a nar-

row gorge with nearly vertical walls. Here and there a slender fringe of green borders the river, but often the rock rises directly from the water. Above it is a short slope of clay and shale, followed by a smooth red wall of over a thousand feet. Then there are red slopes topped by the limestone cliff on which we stood. The heat was far over 100 degrees, so we crawled with the lizards under a scrawny bush on the edge of the cliff and listened to the distant roar of the rapids. We longed for a straw which would reach to the river, thinking of the weary hours before we might find water on the slope of the Walhalla. It was a long, hard climb back to our camp and we thought it unlikely that many would soon follow our trail. On reaching the rim a great wind and rain threatened to sweep us back into the canyon and it grew very cold. Low down beneath thick purple clouds, the sky flamed with the deepest orange-vermilion, changing to intense rose-red. We returned to our cabin by starlight, letting our horses feel their way through the night.

Most stupendous of all our natural wonders, this grandest canyon of canyons is yet practically unknown in some of its finest sections. Without intimate acquaintance, who can comprehend its age-

long mysteries? The longer we carry its presence in our thoughts, the greater is its appeal and its recompense. Its wonderful architecture, its marvelous coloring, and its sublime beauty call to us insistently to visit the canyon for the first time, or to return again and again as to the companionship of a great personality.

EASTERN SCENIC REGIONS

CHAPTER XVII

THE MAMMOTH AND GREAT ONYX CAVES

To the explorer who seeks variety of experience, one of the most fascinating lines is that of cave exploration. Throughout our western country there are many interesting caves that await discovery, and others that have been but partially explored, but no section offers a better opportunity than the limestone region of Kentucky. Here are many thousand miles of underground passageways and caverns, some of which are wonderfully decorated with stalactites and stalagmites and all manner of gypsum, onyx and alabaster formations.

In some ways cave exploration is very alluring to a mountaineer, for the usual problems of ascent are reversed, and one must often effect a cautious descent into unknown depths in partial or complete darkness. With Alpine rope about his waist, and a loop for his foot, the explorer is lowered by his companions in response to signals. In England there are several clubs whose members seek the

nether world on week-ends and holidays. It is often a wet and slippery job, involving considerable danger; but the fascination of the unknown affords ample compensation. We look eventually for increased activity in cave exploration in this country, for nowhere else is there finer opportunity for enjoying this sport or for studying its scientific aspects.

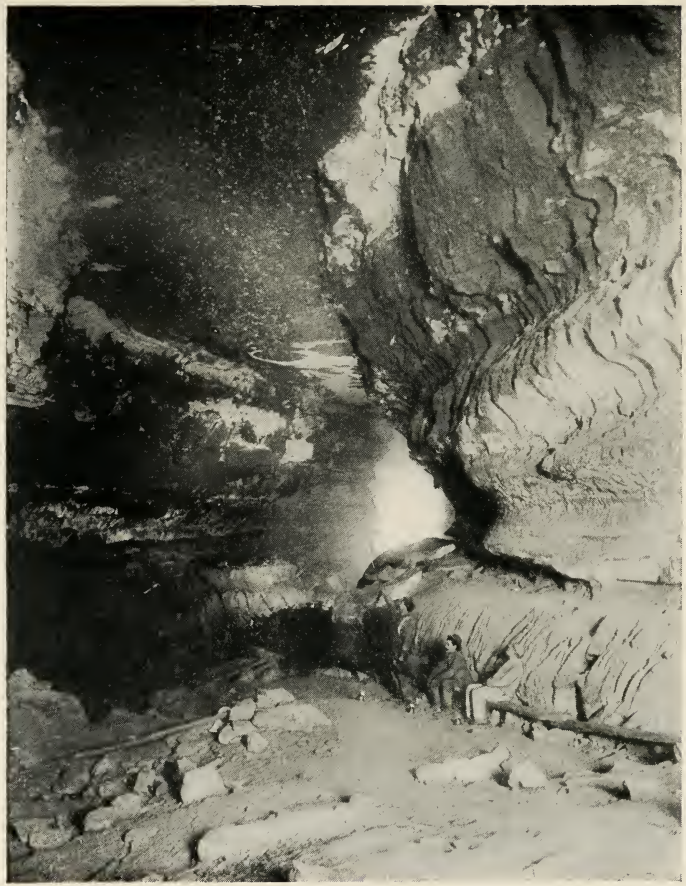
Longest known and most often visited, the Mammoth Cave of Kentucky is still somewhat inconvenient of access, but it well repays the journey for all who seek acquaintance with the subterranean world. Two and a half hours south of Louisville we leave the train at Glasgow Junction, where a diminutive line takes us to Mammoth Cave. A beautiful forest clothes this interesting section of Kentucky, attracting a variety of birds, and sheltering many delicate flowers in its sunny glades. As the rain water passes through the decaying vegetation of this forest, it gathers carbonic-acid gas, giving it the capacity to dissolve the lime and iron of the rocks beneath. Here are layers of limestone several hundred feet in thickness, which for ages have been gradually eroded by the dripping water. When it finds an easy channel in the limestone rock it quickly excavates a passageway of in-

creasing size. If it encounters obstacles and has to gradually filter through cracks in the rock, which finally open on the roof of a cavern, it may be met by a current of dry air, which usually flows through these underground passageways, and evaporation will ensue. In this way the lime and other substances carried in the water are deposited in various hanging formations. Some of these reach downward in slender fingers called stalactites. If the drop falls to the floor, evaporation causes a further deposit, which is built upward into a stalagmite. In time the upper and lower fingers may join, making a continuous column; and where many of these columns join, the cave is slowly filled in. It has been estimated that it may take a hundred years for an inch of material to be deposited.

In Mammoth Cave, discovered in 1809, there are many waterworn passageways of great length, and occasionally of considerable height. Since 1824 when Stephen L. Bishop, the first explorer of the cave, wrote his name and the year at the end of every lead which he followed, 152 miles of passageways, comprising 256 avenues, have been discovered. Revisiting the region in 1917, I secured the services of a descendant of the original ex-

plorer, and we set out for the most interesting and little-known sections of the cave. Here the footprints of early explorers lay undisturbed for many years, and we found several of the hollow sticks with burned ends that were used by the Indians as torches. There is no evidence, however, that they penetrated the cave for any great distance. All its passageways are the water-worn channels of former days, and Echo River still lingers, ofter rising with such amazing rapidity that parties which have drifted on its surface are unable to return by the same route an hour or two later. Since the days of the Indians, water has not flowed where they explored, for there is no deposit of mud in their torch sticks. The present inhabitants of the cave are big rats, whose tails leave their trails in the sand, beetles, white crickets, eyeless fish and crabs.

Often the way was very narrow and winding, as in the Black Chambers, while in many of the never-used smaller ones, there was barely room to wriggle forward by inches, pushing my lamp before me. In certain sections of the cave there is almost a labyrinth, and in some instances five levels are found one above another. In a distant portion of the cave I was able to explore a short corridor,



STAR CHAMBER, MAMMOTH CAVE, KENTUCKY.

© *L. P. Edwards*

DRAPERIES IN THE GREAT ONYX CAVE.

which had been considered inaccessible owing to the inconvenient height of its entrance.

Mammoth Cave is unique in the width and height of its great chambers, and in its vast pits and domes which were hollowed out by the swirling water, and whose deep voice resounds in harmony with one's own. Some of these are 150 to 250 feet in depth or height, the finest being Cathedral Domes, which are far distant from the usual routes of travel. After their discovery they were lost for 50 years, being rediscovered by my guide in 1908. Here are four adjoining domes, possibly 250 feet in height, and 30 to 40 feet in diameter. Their walls are of fluted limestone in horizontal and vertical layers, from which water is dripping. Brown and slimy with mud, they are impossible to climb without ladders, so that the openings near their tops are unexplored, and one may not go farther in the cave in this direction. Instead of being rarely visited, Cathedral Domes should be accessible to any seriously minded traveler.

Occasionally men have been lost in the cave by becoming tired at the slow progress of their party, and have started off on their own account. After a little they become confused amid the multitude of passageways, wander around for hours until

their lights go out, and spend the night in darkness and fear, shouting until they are rescued. Some years ago four men left their party, and failing to appear, my guide went after them at seven in the evening. He had already had a hard day's work in the cave, but he searched until one in the morning before he heard their calls. They had only one light left which was nearly burned out, and they were well scared. After their rescue one of them said, "This man saved our lives, I move we each give him a dollar."

In Mammoth Cave there is not the variety of stalactites and stalagmites, or of onyx and alabaster formations which are found in some of our smaller caves. Luray Caverns in West Virginia, discovered in 1878, is much finer in these embellishments; but even it is surpassed in beauty and perfection of decoration by the Great Onyx Cave. Along the banks of Green River and in adjacent regions there are thousands of sink-holes and hundreds of open caverns. Now and then a new cave is discovered, with miles of white and gleaming passageways uninjured by man. On June 12, 1915, a hillside opening was found on the land of a local farmer about three miles northeast of Mammoth Cave. The opening was enlarged and many

memorable days were spent in exploring this newest and finest of caverns, which was named the Great Onyx Cave. Two new levels have just been discovered, one of them containing an onyx chamber ten times larger than those previously found in the cave.

Walking through the beautiful Kentucky forest, filled with a multitude of little birds and bobwhites cheerily whistling, I reached this little known cave toward evening. On entering, one passes through a chamber in which a fairy forest of stalactites and stalagmites are growing. Often they join to form a massive column twelve feet in height that seems to support the roof; again the diameter of the column is only that of a pencil. It is said that the gradual dropping of water may deposit only the thickness of a wafer in five years. The smoother portions of the roof are plastered as if by hand with plate gypsum, white and sparkling as the purest snow in sunshine. Elsewhere the gypsum is peeling away in wax-like plates to make room for a younger growth. Fringes of tiny stalactites like icicles run here and there over its surface and occasionally gather in richly decorative clusters. Other ceilings closely resemble new brown maple sugar. Beyond are transparent shawl-like

draperies of alabaster and onyx that suggest strips of bacon when a light is placed behind them. Everywhere the formations are of surprising interest and beauty, and are as yet uninjured by tourists or by the smoke of torches.

As we penetrate the more distant portions of the cave the gypsum formations increase in beauty and wonder, and we find many varieties in active growth. Here the roof is laid with fiber gypsum, soft and fluffy like cotton; there the walls are covered with needle gypsum resembling angora fur; or the formation is feathery like the frost flowers formed by the wind and snow upon a mountain top. Cauliflowers are abundant, while the ceiling is often covered with gypsum snowballs which are budding and blossoming into chrysanthemums, hyacinths, lilies and roses, until there seems to be a great garden above one.

Some of the more delicate alabaster formations closely resemble clusters of white grapes. Possibly the most marvelous are the alabaster helictites, which are a curiously twisted form of stalactite. In the limestone rock of the ceiling there are tiny tracks along which the water finds its way, and its gradual dripping at slightly varying points is supposed to form these helictites, which grow in every

Glory Cluster, Great Onyx Cave, Kentucky.

© *L. P. Edwards*

Helictites in the Great Onyx Cave.

© *L. P. Edwards*

direction apparently regardless of gravitation. Great clusters of white, yellow and brown flowers and fruit hang invitingly above one, or one may fancy he sees hanging gardens of brown moss and seaweed.

So beautiful and so perfect are these formations in the Great Onyx Cave that one feels it, together with Mammoth Cave, should eventually be secured by the government and administered by the National Park Service for the benefit of the nation.

CHAPTER XVIII

STROLLS UPON OUR HIGHEST EASTERN MOUNTAINS

THOSE of us who live in the eastern part of the country cannot turn to mountains of great height for our week-end and holiday excursions; but there are many delightful strolls which one may take over the hills at no great distance from New York or Boston. In the Catskills and Adirondacks of New York, the Green Mountains of Vermont, the White Mountains of New Hampshire, or the Berkshires of Massachusetts, one may find an interesting variety of beautiful scenery and ample opportunity for good exercise. A little farther afield there are the Black and the Great Smoky Mountains of North Carolina to allure one; or Mount Ktaadn in Maine, with the most interesting cliffs which a climber will find east of the Rockies. On all these trips topographical maps of the U. S. Geological Survey should be taken, when they are available. For the man or woman who is socially inclined, numerous outdoor and hiking clubs conduct parties to view these regions; or one may

roam alone with sleeping bag, provisions and map, discovering the country anew for himself.

MOUNT WASHINGTON

Organized in 1876, the Appalachian Mountain Club has built and mapped many trails in the White Mountains, to which summer and winter trips are often scheduled; and many have found food and shelter at the camps and stone huts of the club. In all about 250 miles of trail are maintained, and the club owns 17 reservations in Massachusetts, New Hampshire and Maine. It publishes an indispensable pocket Guide to the Paths in the White Mountains and adjacent regions.

Since the days of the early settlements in New England, the White Mountains have contributed much to the imagination and to the character of all who have sought their acquaintance. Without endeavoring to compete with our higher Western ranges, they rise with individual charm and grandeur. In the summer one may take an evening train from New York, arriving the next morning at Crawford House near the head of Crawford Notch. With rucksack containing provisions and sweater, he may start on the trail leading over Mts.

Clinton, Pleasant, Franklin and Monroe to the Appalachian hut at the Lakes of the Clouds. After leaving the spruce woods there are far-reaching views and good exercise up the summit rocks of Mt. Washington, 6,290 feet. If one has not lingered on the way, there will be time to follow the Gulfside trail, traversing the northern peaks, Mts. Clay, Jefferson and Adams, to the Madison huts, where there is welcome food and shelter for the night. In the morning one may descend to the railway at Appalachia, and there are many other trails from the summit of the range that lead downward through attractive scenery. The climb of Mount Washington should not be attempted in stormy weather, as conditions often develop which are impossible to face and lives have sometimes been lost.

MT. MANSFIELD

The Green Mountain Club of Vermont offers a trail from the Massachusetts border to Johnson, Vermont, four-fifths of the way across the state toward Canada. Only the southern portion of Vermont has been mapped by the Geological Survey, and there are several hundred peaks ranging from 2,000 to over 4,000 feet in height, many of which

are unnamed and but little known. They are forest-covered in the south, but have bare, rocky summits in the north. From Bennington to Camel's Hump, or Couching Lion, which is 4,088 feet high, the Long Trail affords an attractive camping hike, requiring sleeping bag, food, axe, compass and matches. North of Camel's Hump one will find lodgings and it is only necessary to carry lunch. In this section are the highest peaks, culminating in Mount Mansfield, 4,407 feet, from which there is an extensive view across Lake Champlain to the Adirondacks in the west, while the White Mountains are seen on the east. The club has built about 211 miles of trail, along which it has erected shelters for the convenience of hikers, and it publishes a useful guide book of the Long Trail.

To obtain a glimpse of the Green Mountains one may leave New York of an evening and arrive at Waterbury, Vermont, early the next morning. Here on week-days an electric line runs to Stowe, where one may hire an auto to Smugglers Notch and climb Mt. Mansfield by the trail from Barnes Camp. If one arrives on a Sunday, or if he would enjoy a fine all-day tramp on a week day, an auto may be secured at Waterbury for Nebraska Notch

to the south of Mt. Mansfield. It is a winding road that finds its way over picturesque old bridges and around fern-covered hills on which the yellow birches and happy pines are awakening to the first rays of the sun. Starting as the mists are lifting, there are miles of gradually ascending trail through thickets of ferns and clusters of Clintonias, with their china-blue berries. At last the trail rounds the forehead of the mountain and climbs steeply upward to the nose, which is the highest point, 4,407 feet. In storms it is scarcely possible to stand erect, but there are thrilling glimpses into the distant valleys, as the wind-driven clouds open and close in an instant. At the Summit house one may secure delicious maple sugar, and then leave for Smugglers Notch by the trail. A more interesting route for a mountaineer is to continue north over the chin, and down to the Lake in the Clouds. Just before reaching the lake a precipitous brook bed, where one must cling to trees and vines while he descends the slippery moss-covered rocks, offers the shortest route into Smugglers Notch. The walls of the notch tower over 2,000 feet above the road, and giant blocks of granite from the cliffs have tumbled together to form a cave. It is 10 miles by passing auto to Stowe.

HIGHEST EASTERN MOUNTAINS

MOUNTS EVERETT AND GREYLOCK

The Southern Berkshires of Massachusetts are within easy distance of New York and are especially worth visiting. Leaving the city in the late afternoon, Copake Ironworks is reached, where one may spend the night. A road between Washburn and Bashbish mountains leads southeast to Alander Mountain, 2,243 feet, where a romantic fern-embowered trail winds up its tree-covered slopes. Again from the Ironworks one may follow the deep gorge of Bashbish Brook to the east, and continue to the trail which ascends Mt. Everett from the west. It is an attractive stroll to the summit, 2,624 feet, the second highest in Massachusetts. Descending a little way by the trail, one may turn to the east and gradually climb down a steep ravine through which the water foams and tumbles. It is then a few miles across country to an electric line, by which one may go north to Pittsfield for the night. Then the car may be taken toward North Adams, stopping at the entrance to the trail up Mt. Greylock, 3,505 feet, the highest mountain in Massachusetts. From the summit observatory there is an extensive view of wooded mountains. The descent may be varied

by dropping down the Hopper on the northwestern side of Greylock. The route over the cliffs is rather steep for one who is not a mountaineer, but its scenery is rewarding. Hopper Brook and Green River are then followed to the railway at Williamstown.

MT. MARCY

It is an overnight trip from New York to Lake Placid in the Adirondacks, where one may climb Mt. Marcy, 5,344 feet, the highest elevation in the state. An auto should be taken to Heart, or Clear Lake, where the trail begins. At the dam one turns to the left, and farther on the John's Brook trail from Keen Valley is entered, which finally reaches the summit of Marcy. In addition to most of the leading peaks of the Adirondacks, Mt. Mansfield, in Vermont, is visible. A trail continues down the southern side of Marcy, reaching the head of upper Ausable Lake, but it does not continue down the lakes. It is possible, however, to follow the shore of Upper Ausable, cross the stream between it and Lower Ausable, and then traverse the eastern bank of the latter lake, finally arriving at St. Huberts. A steep slope strewn with

fallen logs makes this route undesirable along Lower Ausable. It is far more interesting to descend the John's Brook trail to the route over Mt. Haystack and the Gothics, which leads out to St. Huberts, where an auto should be secured for Keene Valley and return to Lake Placid.

An Adirondack Mountain Club has recently been successfully organized, and great development of the trails and facilities, together with a much needed guide book of the mountains, may soon be expected.

SLIDE MOUNTAIN

One of the oldest clubs in the country is the Fresh Air Club of New York, organized in 1877. It consists of a small group of men who join in Sunday walks of 15 to 20 miles over the New Jersey hills and in the Highlands of the Hudson. Favorite climbs are up the rocky face of Storm King and over Crows Nest on the west bank of the Hudson; or up Anthony's Nose or Breakneck on the eastern bank. In the spring the club visits the Catskills and follows the trail which they have constructed to Slide, 4,205 feet, which is the highest peak in these mountains. Taking an afternoon

train from the city, one may sleep at Kingston, leaving early for Phœnicia, where an auto may be secured up Woodland Valley. It is a somewhat hidden trail over Wittenberg and Cornell to the summit of Slide, but the view is very beautiful, especially when the autumn foliage is at its best.

MOUNT MITCHELL

By leaving New York about noon, one may reach Asheville, North Carolina, the next morning; but if you are a climber in search of Mt. Mitchell, 6,711 feet, believed to be the highest elevation east of the Mississippi, you will drop off the train with your rucksack at Graphiteville, before Asheville is reached. If it is in June the mountains will be richly covered with rose-purple rhododendrons, flaming scarlet and orange azaleas, and great areas of white and pink mountain laurel. At first one must climb a steep spur of the Blue Ridge, and then, turning to the left, traverse the peaks of the Black Mountains until Mt. Mitchell is reached. Some years ago a magnificent forest covered these slopes, but it was largely destroyed and burned over by destructive lumbering. The view from the summit of Mitch-

ell is not one of rocky peaks, but is a dreamy blue sea of curving, flowing forest. In cross country work one encounters innumerable ridges, separated by deep and narrow ravines, where he may easily become entangled in almost impenetrable rhododendron and laurel thickets that are 10 to 20 feet high. The return from Mt. Mitchell may be by way of Montreat and Black Mountain, where the railway is rejoined. A logging railway, which runs from Black Mountain to Mt. Mitchell, takes passengers nearly to the summit of the mountain.

CHAPTER XIX

A TRAVERSE OF MOUNT KTAADN IN MAINE

AMONG the highest peaks in the East, Mount Ktaadn[1] remained the only one which I had not climbed. Its isolation in the Maine wilderness has prevented its being frequently visited, and has hindered the attempts which have been made to arouse public interest in its preservation as a national or a state park. No accurate map exists of the mountain and its approaches, and one who would view its great eastern cliffs must travel afoot with sleeping bag and provisions. Surrounded by forests that are diversified by many lakes and streams, the great mass of Ktaadn is crowned by four principal summits, of which the two southern are the highest, West Peak being 5,273 feet and East Peak 5,260 feet.

Desiring to view the great eastern cliffs of the mountain, which involves the longest trip across country of any approach, I left the Bangor and Aroostook railroad at Stacyville at dusk on the

[1] Approved spelling of the Appalachian Mountain Club.

last day of July. Shouldering my 25-pound sleeping bag and pack I walked for some distance along the old tote road which penetrates the forest. It had been raining frequently for days, and the mud holes and boulders were difficult to avoid in the darkness, so I finally crawled into my bag and waited for morning. Although the material was new and guaranteed rain-proof, it had evidently not been tested in the Maine woods, for it failed to keep out all the moisture.

About 4 A.M. I started for the East Branch of the Penobscot, where I crossed the river in a canoe and then pushed my way through the dripping woods, accompanied by swarms of mosquitoes. Unfortunately the route to Ktaadn was not marked by signs to assist one. Guides are available for that purpose. At an abandoned camp the tote road turns from the stream and goes up hill to a deserted lumber camp. Here I explored every lead, before returning to find that the hidden trail continued through bushes along the stream. Turning at last toward the mountain, I followed a recent forest trail, marked only by an occasional blaze, from which there is a fine glimpse of distant Ktaadn. This cut-off trail finally joined the overgrown tote road which reaches Ktaadn Pond.

Crossing the dam to the southern side of the lake, I reached Cushman's Camp and kept on to Sandy Stream Pond, about 24 miles from Stacyville, where I spent the night.

Over rich carpets of scarlet bunch berries and low bush blue berries, and through thickets of ripe raspberries, I found my way upward into the heart of the mountain. On its eastern side there are two basins, the southernmost or Great Basin being the most interesting. Tracks of moose and deer were plentiful, and further up there were tangles of spruce and pink laurel. I finally reached Chimney Pond where the Appalachian Club has sometimes camped. Here is a fine glacial basin with a semicircle of rugged cliffs rising abruptly above the water for 2,300 feet to the summit of the main peak, which is over 30 miles from Stacyville. One may ascend Pamola Peak on the left by a chimney or by trail, and then traverse the Knife Edge to Ktaadn, which affords as good a climb as anything east of Colorado. Or one may slowly work his way over the tops of thick spruce and along the boulders of a dried-up brook to the Saddle Slide, where there is a forty-five degree slope of 800 feet to the Saddle, and a mile of gradual ascent to the highest peak.

Eastern Cliffs of Mount Ktaadn.

G. R. King

Mount Ktaadn, Maine, from the West.

© *W. F. Dawson*

A TRAVERSE OF MOUNT KTAADN

From the summits of the two highest peaks of Ktaadn I viewed a vast expanse of forest in every direction, dotted with lakes as far as the eye can reach. To the southwest lay Moosehead Lake with its many arms, while the smoke of a train at Greenville on its southern shore marked the distant point where I was to reach the railway. From the summit of the second peak I descended the tumbled granite slope and traversed toward the Abol trail, which leads south for 25 miles to Millinocket. Deciding to leave the mountain at its western extremity, I crossed the very extensive table land and started down the Hunt trail, which clings to a rugged spur and offers views into the depths on either side. There is good exercise in winding around, over and beneath the gigantic boulders, but a lingering cloud of black flies did not add to my enjoyment. Down through thick spruces where it is just possible to pass, and then to the south along the slope, this romantic trail at last joins an abandoned spur of the Millinocket tote road. I wished to reach York's Camp on Daisy Pond and from my sketch map the trail appeared to go more to the west. Fearing that I might have passed a direct route to camp, I reascended the mountain for some distance to survey the country; but find-

ing no other way, I returned to the road where I slept the night.

In the morning a steadily increasing rain forced me on, and on reaching the main tote road, I realized at once that I was on the right route. In an abandoned cabin occupied by a porcupine, who was chewing up the floor, I built a fire to dry off; but the hot old stove pipe collapsed into rust in my arms and I again hit the trail. At Daisy Pond one should cross to camp in a canoe, but failing to get a response to my call, I followed the shore over almost impassable windfalls. York's camp is about 7 miles from the summit and it is 12 miles further to Ripogenus Dam, where one may secure transportation to Lily Bay on Moosehead Lake. Unfortunately there is no direct trail and one must follow two sides of a triangle. Not long after leaving camp I crossed the dam over the Sourdnahunk, which was in a very bad state of repair, and then followed the stream toward its junction with the Penobscot. Fine white birches towering above the spruces enlivened my way. Coming to the West Branch of the Penobscot I paused at the dam, which afforded the only means of reaching the west bank of the river and my destination at Ripogenus. Instead of finding a pathway across the dam, I was

greeted by a volume of water which rushed and foamed with great velocity and depth across its entire length. I went up stream a couple of miles to see if there was other means of crossing, but finding none, I returned to the dam. A floating log boom extended diagonally from the shore above to the central gate of the dam, and another boom appeared to reach the opposite shore in like manner from the watergate. Walking out on the logs, I climbed over the gate and stood facing a break of twelve or fifteen feet in the other boom, from which the logs had been carried away by the great force of the current!

It was many weary miles by trail to Millinocket and my feet were already blistered, as it was my first tramp of the season. If it was humanly possible I had to make Ripogenus that night. Stretching from the top of the watergate to the end of the boom was a single rope that sagged close to the water. It was useless to hesitate and no one was within miles to assist me. Removing my clothing, I rolled it in my sleeping bag, which was secured by a pack strap. Passing the strap around the rope, I started the pack downward, hoping to shake it across to the boom. In spite of my efforts it sagged in mid-stream, rapidly taking in water. I

had fastened my valuables about my neck; and, glancing at the cheerful information carved on the gate that a man was drowned here in 1917, I stepped into the torrent trusting myself to the rope. If it broke I had hoped to climb one end of it, but I found this would hardly have been possible, for the force of the current instantly grasped my body and held it outward almost over the main fall that poured through the open water gate. It was rather slow work getting around my bag and then pulling it and myself up the rope to safety. I was almost submerged, but my foot finally touched a timber which helped me to rise out of the flood.

As I walked the logs toward the shore, my water-soaked bag burst open and I effected a lively rescue of my equipment. If my climbing boots had been lost it would have been a serious problem how to have continued over seven miles through the forest to Ripogenus. When I reached the end of the boom, a dozen feet separated it from the steep bank, to which it was anchored by a rope. Grasping my bag with one arm, I reached up for the rope with the other and made a long spring toward a log near the shore. As I landed upon it, its far end went up, while my end went out into the stream. I found myself in water to my neck, and

it required rapid work for a few moments to reach the steep bank. After drying my things a little, I shouldered my sagging pack and followed a very confusing trail through the yellow birch, beech and hemlock. Ancient blazes and old wood roads led only into bad tangles, and I afterward learned that the trail along the river was submerged by the high water. As twilight closed in I reached a lumber road leading to Ripogenus. Ducks flew low along the river and startled deer bounded away through the water, while two large owls watched my progress from an overhanging limb. Forcing my pace, though my feet were weary, I reached shelter at Ripogenus dam at 9 P.M. Owing to variations on my route, my trip had totaled about 60 miles, which I might reduce another time to 50 miles from Stacyville to Ripogenus. Building a fire, I dried my things until midnight. Here I learned that the Ripogenus water gates had been opened that day to release a large volume of water for lakes near Millinocket. This dam is a project of the Great Northern Paper Company, and it retains a chain of lakes about 22 miles in length. In the morning I journeyed by auto truck for 35 miles to Lily Bay on Moosehead Lake, where a steamer took me to Greenville Junction on the railway.

There is beautiful scenery on the lake, with wooded shores and hills over which peer distant mountains. The bold ridge of Mt. Kineo rises impressively in the north, while over the lake are scattered a multitude of charming little islands.

Unquestionably Mount Ktaadn is the crowning glory of Maine. Her citizens should be proud to build a road to the mountain from the east, and to set aside the region as a park before its forests are completely ruined.

CHAPTER XX

WINTER SPORTS AMONG THE MOUNTAINS

FROM Christmas to Washington's Birthday, a multitude of men and women, who would keep fit for their work, answer the call of the snowy woods and hills and gather for many a week-end of glorious winter sport. To be out of doors in winter is as necessary for a mountaineer as to roam far afield in summer. There are many outdoor clubs scattered over the country which offer their members weekly walks in spring and autumn, with an outing of two to four weeks in mid-summer. What is more natural than that they should provide holiday trips and at least a week's excursion to the mountains in mid-winter? Leaving our cities by the trainload, these lovers of health and of nature hasten overnight to the hills, where they set out on snowshoes for the climb to their snow-buried cabins. Tired, but joyous, they arrive by night, tunnel through the drifts, build rousing fires, and pass the evening with story and song. By early morning the party is ready for skiing and snow-

shoeing amid the Alpine firs, and for coasting down the slopes of the mountains. At some centers of winter sport fine skating and tobogganing are to be found, with opportunity for curling and for enjoying the thrill of ice-boating. Rapidly the days glide by and the week of health-giving exercise may be prolonged to two, before return is made to the work-a-day world. Increasingly people are finding that the out of doors pays in their business and professional life.

Almost any one with endurance can learn to snowshoe after a fashion in a day or two, but on skis there is no time limit. It is usually easier for a good skater to learn to ski than for one who is not used to the art of balance. Muscular energy is usually not needed, but flowing, even motions like those of a sail boat are required. Many women as well as men ride their skis very well after a few days of effort, but we are assured that skis, like mules, are full of temperament, and one needs much acquaintance with them to feel at home. It usually takes several seasons to become an expert on skis, and one should commence rather young, for it is easier then to let one's self go. To the spectator, who cannot follow the swift gliding ski runner through the trackless woods, the most

R. L. Glisan

AMID THE ALPINE FIRS AT MT. HOOD.

Byron Harmon

WINTER SPORTS AT BANFF.

thrilling moments are when he stands beneath a ski-jump. He sees the contestant start far above him on the steep, smooth slope of a trestle, down which he rushes with tremendous speed, crouching to avoid the wind. At just the right instant on the jumping platform, the athlete springs with all his strength into mid-air, sailing from 100 to over 200 feet and falling in a curve of thirty degrees. Fortunately his landing place is built to slope at the same angle so that if he alights in the right posture he will continue his downward course without shock. Most spectacular is the forward somersault in mid air, which must be so accurately timed that the jumper will complete it at just the right instant. All the toilsome work of herring-boning up a hill is soon forgotten in the swish of the skis through the cathedral aisles of the pines, or when they sing and whistle as one rushes down a steep mountainside at thirty or forty miles an hour. There is many a thrill as well in the fearsome art of ski-joring.

To mention a few of the opportunities which are offered in various sections of the country, we think first perhaps of that strenuous band of students in the Dartmouth Outing Club. For years they have held carnival among the New Hamp-

shire hills. Numbering around a thousand members, the club has made the little town of Hanover famous as a center of winter sports where records are often broken. Perhaps the greatest public interest is shown in the ski-jumping contest, where thousands gather to watch the contestants rushing downward over a 300-foot course. The club has built a chain of seven shelter cabins extending toward Mount Washington, with over eighty miles of carefully marked trails. Every week-end and vacation finds parties pushing forward for long distances through the storms, gathering new inspiration for their work at college. Once each winter a company of about fifty ski and snowshoe to the summit of Mount Washington or to other peaks in the range. Many professors belong to the club, and soon after Christmas one of them gives instruction to beginners in ski-running, turning and jumping. At Dartmouth snowshoes are but little used, except for cross-country work through heavy brush and for mountain climbing.

One of the most popular of the eastern centers for winter sport is at Lake Placid in the Adirondacks. Here the Lake Placid Club has formed an organization called the Sno-Birds, which arranges a daily program of considerable variety and

George Fiske

YOSEMITE IS A FAIRYLAND IN WINTER.

interest. There are races and matches of all kinds for skaters and skiers, snowshoers and tobogganists. Hockey and curling on the ice are varied with straw rides and hare and hounds. Baseball may be played on skates, or one may take part in a ski-joring race. Competent teachers are ready to assist the beginners in all these sports, and an international ski-jumping competition is held in February.

For many years the Appalachian Club of Boston has spent a week in the White Mountains in February. In addition to the usual sports, some of the climbers are skilled in the use of ice creepers, or crampons, with which they scale the icy peaks which would otherwise be inaccessible. Likewise the Field and Forest Club of Boston offers its members a winter trip to New Hampshire in February. New York members of the Green Mountain Club of Vermont also spend a week amid their snowbound heights. Northward their long trail wanders over the mountain tops, with convenient shelters along the way, until it reaches the summit of Mt. Mansfield, the highest in the state.

In the heart of the Rocky Mountains, with 12,000 to 14,000 foot peaks around them, the Col-

orado Mountain Club has a glorious winter outing in February. As soon as the snow begins to fly the Denver enthusiasts get out their skis to "grease 'em up." Every week end sees numberless autos, from which skis are projecting in every direction, making their way northward to the mountains. Amid the firs at Fern Lodge in Rocky Mountain National Park there is buoyant good cheer, while the soft white snow streams forth in banners from the peaks above. Some of the party usually attempt to reach the summit of Flattop, 12,300 feet, but they seldom succeed as the climb is very steep and the weather very uncertain. Ski jumping is in its infancy as yet, but already the younger members are said to feel much at home on the slippery slats.

The slopes of our great northwestern volcanoes are ideal winter playgrounds which the people of Oregon and Washington are fortunate in possessing. There are the Mazamas of Portland, oldest of all the western mountaineering organizations, who have a schedule of local walks and holiday excursions which offer much to the city dweller. In winter they visit Government Camp at 4,000 feet on the south side of Mt. Hood, and the Mt. Hood Lodge at 3,000 feet on the north side. The Trails

R. L. Glisan

NEW YEAR'S AT MOUNT RAINIER.

Club of Oregon, also of Portland, builds trails over the hills and has a cabin on the summit of Larch Mountain. More especially does the Mount Hood Snowshoe Club offer the finest sport in January and February at its clubhouse near the mountain; and it has several ski courses which provide for a variety of snow conditions.

The Mount Rainier National Park is a winter paradise which many enjoy. Just before New Year's the Mountaineers of Seattle and Tacoma gather with snowshoes and skis at Ashford and Longmire Springs for the climb to snow-covered Paradise Inn, where they hold festive program. Often a winter party will ascend to McClure rocks, or even press on to the stone hunt at Camp Muir at 10,000 feet on the southern slope of Mt. Rainier. Others wander across the buried flower fields of Indian Henry's, where the snow-hung firs tower against the deep blue sky, and one must protect himself with colored glasses from the dazzling whiteness on every hand. Indescribable are the rosy alpenglows and the moonlit nights, when the eyes are ever drawn upward to the great, white, heavenly heights of Rainier. The Mountaineers also have good snowshoeing at their Snoqualmie Lodge in the Cascade Range.

Going still northward one may find winter sports in February at Banff in the Canadian Rockies. Here are famous hot springs as well, and one may plunge from the snow into as warm a bath as he desires. Around the little town the mountains rise protectingly, offering rest and renewal of life to those who steal away from the cares of the world. In eastern Canada the winter carnival at Montreal has long been famous and the skiers of McGill College are often met at intercollegiate sports.

California is often thought of as the land of winter sunshine, but in a state so vast there are hundreds of miles among the mountains where snow and ice are king for many months. Yosemite Valley is now open all the year, and here in winter one will find exercise and enjoyment amid some of the grandest natural scenery that nature has to offer. The Sierra Club of San Francisco and Los Angeles, with about 2,500 members, has many wonderful walks and outings, with a trip to the snows of the Sierra near Lake Tahoe, or at Mt. Shasta, over Washington's Birthday. The vigorous southern section of the club likewise seeks the snows in the mountains near Redlands.

On the
Flattop Trail,
Colorado,
in July.
12,300 feet.

G. H. Harvey

Alpine Club
of Canada
Ascending
Yoho Glacier
en route for
a Climb.

Byron Harmon

Lost to the
World, above
the Clouds in
Moraine Park,
Mt. Rainier.

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CHAPTER XXI

THE VOICE OF THE SEA

ONE of the most beautiful sections of our Atlantic coast is that of the north shore of Massachusetts. Extending from Nahant to Cape Ann, and beyond to the fascinating sand dunes of Ipswich, may be found a surprising variety of delicately curving beaches, rocky, pine-clad points, and brown wave-swept reefs and ledges over which the sea murmurs softly in summer, and storms wildly in the great gales of a northern winter.

Happy indeed is he whose boyhood memories fondly cluster around our New England hills and shore. My earliest acquaintance with the sea was formed as a child in the quaint historic town of Ipswich. In company with my mother on Town Hill, I watched the tide creep in over the marshes, waving their long salt grasses that glowed with the wonderful reds and browns and yellow-greens of mid-summer. We lingered amid the flowers on Heartbreak Hill, watching the white clouds floating idly over the wooded hills that gathered pro-

tectingly about our home. Seaward the glistening white waves of the sand dunes followed the shore from Ipswich river to the mouth of the Essex river, and far into the distance toward Cape Ann. Happy days we spent upon the winding river, finding the purest of water lilies; or we counted ourselves rich as we roamed afield amid the golden-rod and the cardinal flowers.

As we sail down Ipswich river through the marshes, picturesquely dotted with their cocks of hay, we feel the damp salt breath of the ocean and hear the low murmur of its waves. On the bar a company of clumsy seals are swimming, playing with the waves as the rising tide sweeps in upon them, or bobbing about with only their dark heads visible in deeper water. Great white flocks of wheeling, screaming terns rise from the bar and circle over the water in search of fish, dropping instantly with splash like lead as they capture their prey. Seaward off the low shore of Plum Island, the winds and the tides are seldom idle. In half an hour, while eating lunch in a boat, one may be carried far out toward the open sea, and it may take a couple of hours' hard rowing amid the white caps to return in safety to the shore.

Long to be remembered is a summer's day

H. C. Mann

RIPPLE MARKED BY WIND AND WAVE. THE DUNES ARE AN ARTIST'S PARADISE.

among the Ipswich sand dunes. For miles along the seashore their wave-like crests, rising for fifty feet in air, are swept by the wind which streams the fine sand backward like foam from a troubled sea. Cast up by the waves, the dunes are constantly changing their form and position, often advancing upon the pines and birches, overwhelming all life in their pathway and leaving nothing after they have passed, save blackened and distorted fragments. On cloudless days the white heat of the sand blinds the open eye and burns the unprotected foot unmercifully. But the exquisite charm of the sand and the sea draws one again and again to seek their companionship. Ripple-marked by wind and wave, of gray and white, streaked here and there with purple and black, the dunes are an artist's paradise. Upon their hard, clean slopes the nodding beach grass traces fairy circles, while every bird and tiny insect leaves open record of his journeys to and fro. The purple flowering beach pea wanders over the sand, and here and there is laid a carpet of cranberry vines, while on Plum Island the beach plum often ripens. In the hollows are sumach thickets and luxuriant, sweet-scented bayberry bushes, from whose aromatic white berries one may make candles for the long

winter evenings. Radiant with deepest hue from the fresh salt air, the wild rose opens with fragrance rare, while the seaside golden-rod in rich profusion treasures the sunshine everywhere.

What endless joy a child may find in the inland amphitheaters among the dunes. Here all the world is hidden from view and the little lagoons teem with a life that is all their own. But come with me along the beach where the joyous sandpipers are flitting, running before the wave or skimming daintily over its foam. With soft gray backs and white breasts flashing in the sunlight, they are the happiest children of the sea. With sharp cries and a ceaseless chatter, the herring gulls come in flocks of thousands to feed upon the beach. When they rise their white wings glisten, and when they wheel they suddenly become invisible; but later they appear like a snow-white cloud in the distance. Now and then the voice of the crow is heard from the pines, while at dusk the dunes are alive with a great variety of birds seeking shelter and filling the air with their curious and interesting language.

As a boy I lived in the very heart of the North Shore at Swampscott by the Sea, and from my windows thrilled as I watched the great white

H. C. Mann

AMONG THE SAND DUNES OF THE VIRGINIA COAST.

towers of spray leaping majestically and silently in air against the rugged cliffs of Nahant, three miles across the bay. What unforgettable sunsets were those of the early 80's, whose unpaintable colors were caused by invisible dust from the eruption of Krakatoa. Exquisite orange and cherry, vivid scarlet and deepest crimson, bordered with dark purple clouds, were wondrously reflected in the shadowy waters. Often we lingered long while the afterglow transformed the sky, and our hearts communed in silence with unseen realities.

The North Shore has a charmingly varied coast line with bold, forbidding cliffs and wooded hills. The view from the tower of Phillips' School is of unusual extent and beauty. Beyond the slender finger of Lincoln House Point is anchored a remnant of the fleet of schooners that in former days sailed to the Grand Banks, returning laden to the water's edge with cod, haddock and halibut. In the distance Egg Rock rises boldly from the ocean near the long peninsula of Nahant, while on the horizon the South Shore often looms in fanciful mirage. White sails gleaming, and coastwise steamers trailing long ribbons of smoke pass in and out of Boston harbor. Across the water are the spires of Lynn, and beyond are the towers and

domes of Boston. Landward the eye roams over a vast forested area of rolling hills, while the north affords a glimpse of Salem and the sea.

On the beach among the clam shells and lobster pots one may find the masters of many a long-departed vessel ready to spin their yarns of storm and shipwreck. Dories laden with the morning's catch of fish or with men returning from the nets are constantly arriving, and on the bay the sails of pleasure craft are flitting back and forth before the breeze.

Strolling along the curving beach to Lincoln House Point we come to Whale Beach with pine-clad Jeffrie's Point stretching toward Dread Ledge, where the sea is sobbing in an age-long reverie. With care one may land on the ledges at low tide to study their interesting life; but in even a moderate swell one must row steadily through the channel, or he will find his dory mysteriously drawn to the rocks. In a storm the ledges are the graveyard of every craft that is driven upon them. With what thrilling sadness have I helplessly watched the schooners drifting to their doom upon this rock-bound coast. Groaning and shattered they were ceaselessly hurled by the wind and the waves upon these jagged and

cruel rocks. Alas, when they came in the darkness of night no human aid might reach their helpless crews.

On peaceful evenings, at Ocean House rocks, the deep orange moon sparkles softly upon the velvet waters, while the red eye of Egg Rock gleams across the bay. Beyond are Boston Light, the Graves and Minot's Ledge, flashing intermittently. In northeast storms the great green rollers break upon these rocks in magnificent avalanches of pure white foam. Unforgettable are the seascapes in which the enormous globe of the sun, sinking in a purple sky, glows with deepest vermilion-orange and crimson, painting an indescribable pathway of brilliant, changing color across the foaming water. Surpassingly beautiful is the iridescent mirror at the pathway's ending on the sand. Each wave spreads a fairy film of creamy white and green upon its surface, and retreating awakens the hidden fire of a million opals.

In summer one may clamber over the rocks from Galloupe's to Little's Point in safety, peering into the ocean gardens where the dark red and brown masses of the seaweed rise and fall with the swell, and the long ribbons of the kelp wave to and fro. Crabs and fishes roam at will amid

these forests, and in the tiny pools left by the tide the star-fish linger. Sea gulls ride upon the waves or gather in noisy confusion upon the rocky isles. Beyond the ledges are the weather-beaten sails of the fishing schooners. Nodding the thick rich sprays of the sea-loving golden-rod, and bringing sweet odors from the wild rose and the bayberry, the wind wanders idly along the point. Red and brown are the grasses, brown and red and gray are the wave-worn ledges. To the artist's eye they glow with color like flower fields of rich orange and delicate pink. At low tide their sides are shaggy with seaweed and banded in white with barnacles. Beyond Little's Point is a long steep beach of beautifully rounded stones, which the sea has been grinding for centuries into coarse yellow sand, singing as it rolls the pebbles up and down. Delicate sea mosses of white and purple, and of green and red are cast up by the waves, which curve in stately deliberation as they break upon the shore. Farther on is the quaint old town of Marblehead. If you have not followed its narrow and winding streets, studied the curious legends upon its ancient gravestones, or watched a yacht race from the rocks of Marblehead Neck, you have joys awaiting you.

THE VOICE OF THE SEA

Along the wilder portions of the Swampscott coast there are few who brave the winter storms. Glorious days are these in which the throbbing heart of the sea beats loudly, and the water lashes itself into froth which the wind gathers and rolls up the beach, or carries in shreds high over the cliffs. Terrible nights are these in which the air is filled with blinding sleet and snow, and the sea with jagged ice and wreckage. Tearing the seaweed and the kelp from their moorings, gathering the driftwood of countless wrecks, and even seizing the stones in their pathway, the waves hurl them all with uncontrollable fury against the cliffs. Mountains of foam rise grandly over a hundred feet in air, the ground on which one stands seems to tremble, and only with the utmost difficulty may one avoid being swept away by the gale. Many the hapless schooners, seeking the port of Boston, that have left their whitened timbers strewn along this shore. Many the crews that have fought in vain for life, escaping the cruel rocks of Nahant, only to be driven by the gale across the bay into the jaws of death on these dread ledges. One terrible winter night, amid the enveloping darkness of a great blizzard, a bark from Spain came laden with wine, seeking safe harbor at Boston. Losing

their reckoning, dragging their anchors, helplessly awaiting their doom, all the sailors reached their final haven that night. The following day their bodies were found rolling in the snow-filled surf by their comrades of the sea, the Swampscott fishermen. Across the outlying rocks were the anchor chains of the bark, and amid the wreckage was its name, Tedesco. Long years have passed, and over the sea have swept unnumbered storms; but still, on wintry days between their games of chess and checkers, the fishermen tell us why these rocks are called Tedesco. Only a little later the Fred Bliss, bound for Boston from the same port as the Tedesco, was driven one night high upon the near-by rocks of Galloupe's Point. Fortunately the all but frozen crew were able to make their way to land, where they broke into a summer cottage and found safety until morning.

To love the sea and to respond to its varied moods is to find enlargement of soul. Its silent depths have claimed the hopes and the lives of a vast multitude. Are there not hours in which one may hear it voice the mingled joys and sorrows of a common humanity? To the listening soul the sea is a wondrous harp on which the chords of life sound clearly.

Tedesco Rocks, at Swampscott, Massachusetts.

C. P. Jeffers

Winter Surf off Eastern Point, Nahant.

C. P. Jeffers

In former days the waves, sweeping in upon Kings Beach, rose to the height of the telegraph poles and tore apart the granite blocks of the sea wall as if they were playthings. Guarding the Lynn shore was a wooden breakwater which was split into kindling in every great storm. Now a curving concrete wall, built to hurl the wave backward, extends along the boulevard. The point at the end of the beach is called Red Rock, and Swampscott is said to be the Indian name for "the place of the red rock." Here in the early days the duly attested but very illusive sea serpent, 50 to 60 feet long, was seen by the fishermen. At low tide on Lynn Beach are long lines of breaking waves with streaming spray; while at high tide the sea mounts far above the breakwater, and falling backward often battles with the incoming wave.

A slender ribbon of sand separates Lynn Harbor from the ocean and anchors the peninsula of Nahant to the mainland. The view from the Eastern Point of Nahant commands the whole North Shore to Cape Ann. Facing the open Atlantic, its volcanic rocks withstand the full power of the winter storms. At Pulpit Rock the deep ocean comes to the very edge of the steeply tilted

strata, and it seems as if the cliffs were remnants of some great volcanic crater, whose other half has long since been swallowed by the sea. Deep fissures and chasms have been worn in the cliffs into which the waves boil and churn, leaping from side to side and shooting upward with such sudden force that one must run to escape being caught and drawn downward into the angry sea. Let us follow along the cliffs in the height of the storm, leaning low against the wind, which holds us from falling, but will carry us away if our attention is relaxed for an instant. Blinded by clouds of spray and numbed by the piercing cold, we gaze upon a scene of the wildest grandeur. Every few moments a great wall of seething water, aglow with wonderful blues and whites and greens, comes sweeping in over the rocks, leaps into the air to an amazing height, falls with a voice of thunder, and cascades backward into the frothy sea. In these magnificent storms Pulpit Rock is completely buried under the white avalanches of the ocean.

In summer the visitors stroll along the beaches in the sunshine, or loiter in the moonlight when the sea is calm; but none are here when the storms of winter sweep in with sudden fury from the broad Atlantic. In the southeast gales the waves come

short and choppy, breaking in whitecaps far out upon the sea; but the full power of the ocean comes majestically with wind and tide in the great northeast storms, whose mighty waves a quarter of a mile in length roll in unbroken to the shore. Sometimes of twenty or more feet in height, they tumble one upon another, changing from green to frothy white and singing with ten thousand voices, which the wind gathers into one, bearing it inland over the snow for miles.

Regretfully must one rely on memory to picture the surpassing grandeur of the greatest storms, for they often reached their height with the tide, too late of a winter afternoon for the camera to record. I know of no more fascinating and difficult branch of photography than surf work, for it involves the most uncertain conditions of storm and of light, combined with the constant thrill of danger from wind and wave. As a wall of foaming water came sweeping into a rocky cove, carrying everything before it in wild confusion, my decision had to be made in an instant, for in the next moment I might find myself amid the seaweed and driftwood, waist-deep in the briny sea. To operate a large camera with tripod in a gale involves lively work. How rarely does the sun peer

through the clouds at just the right moment, and how often does the height and composition of the next wave surpass the one which has been photographed! In no other way may one gain so intimate an acquaintance with the grandeur and majesty of the ocean as by studying its varying moods in company with a camera.

Often have father and I wandered along the deserted and wintry shore on which the great waves were breaking mountain high. Frequently we took our lives in our hands as we climbed the icy cliffs, or ventured far out on treacherous wave-swept rocks in search of the right view point for a photograph. Always we had to keep as near the level of the sea as possible in order not to flatten the surf. As the tide swept in, with each wave hurling its spray higher and higher, what temptation there was to linger in the most dangerous situations, always hoping for a more ideal composition. At other times when alone, I had not only to watch for and to capture the wave at its instant of highest ascent, but I also had to note from the corner of my eye the approach of a billow likely to engulf me. Often have I struggled against a gale that threatened to hurl me into the foaming cauldron of the sea, crouched to await the right

A North-east Gale at Littles Point, Swampscott.

Le Roy Jeffers

Sunlit Surf off Littles Point.

Le Roy Jeffers

instant for a picture, and then have had to run for my life from a rear attack of which little warning was given. Fortunate was I when this was possible, for it was decidedly unpleasant when my retreat was cut off by a swirling lane of icy water full of slippery sea weed and wreckage. Happy was I when I could outdistance the wave, for the alternative was to cling desperately to the rocks, while seeming tons of spray drenched me in a smothering icy downpour.

In later years, what inexpressible joy is mine on sunlit mornings to wander alone along the shore, responding with all my being to the great waves breaking in radiant foam. Deep creamy froth is spread upon the water, and the air is full of the sublime music of the sea. In mountaineering I have found no grander manifestation of power than that of the awakened sea. The wild fury of the avalanche, expending its energy in a few brief moments as it sweeps all life from its pathway, is less impressive than is the measured attack of wave after wave, rolling in from the ocean and breaking upon the cliffs in ever-changing forms of beauty and wonder. What exhilaration there is in watching these great upshoots of spray, mounting higher and higher with the incoming tide, until they call

forth one's deepest shout of admiration and one's keenest longing to share his joy with another. Sometimes the surf is heavy, attacking the rocks in solid masses, and forcing the very air to vibrate with its intensity. Again at nightfall, bleak and chill, the surf towers ghostly against the leaden sky, and the wail of the wind sends one shivering on his homeward way.

Now and then I have sought for a few brief hours to renew my companionship with the sea along the North Shore. Gone are the fishing schooners, and few remain of the men who manned them. Over the bay the sea gulls circle and wheel, or float upon the water undisturbed. There are days in which the tide hastens back to the depths of the ocean, stranding the dories amid the seaweed; and there are others in which the wind sweeps furiously across the bay, lashing it into whitecaps and rocking the catboats at anchor. But my heart turns oftenest to the northeast storms with the stately sweep of their great green waves as they curl and break in rythmic melody, to the roar of the gale and the throb of the sea. Through memory once again there rolls the long lost murmur of the sea voicing its soul eternally. Now as then a child, I turn to thee, hear thy yearnings in-

C. P. Jeffers

IN THE HEIGHT OF THE STORM ON THE SWAMPSCOTT COAST.

expressible, feel thy power immeasurable. Let thy spirit fill my heart with peace!

The scenery of the California coast is always delightful, whether we wander over the sand dunes and morning-glories of Point Pinos, among the wave-worn cliffs and gray cypresses of the Monterey peninsula, or in view of the purple mountains at Santa Barbara. Unknown to the North Atlantic coast are the wonderful blues and indigoes of the water, the flying fish and the richly-colored sea gardens of the Pacific at Santa Catalina. At San Diego the yachtsman finds his paradise, while at Coronado one may watch the feathery spray tumbling gloriously over the breakwater. The long high ridge of Point Loma overlooks the bay, while from commanding view-points the desert mountains of Mexico blend softly with the sky.

On summer days I have followed the rolling hills along the ocean to the south of San Francisco, peering over precipitous bluffs at tiny curving beaches, bounded by rocky headlands and outlying reefs of tilted strata, on which the seals and the white gulls play. The long blue waves of the Pacific break with stately rhythm on the sand, or tower in spray upon the rocks, and the voice of the

sea is sweetest music to the ear. Come with me through the grain fields dotted with golden poppies, over the flower-strewn hillsides, joyous with birds and butterflies, down through thick cedars to the singing sands of the seashore, down to the long brown kelp and the waving mosses!

The sea is a symbol of eternity. As we become more deeply acquainted with its spirit we more truly love its mystery and more clearly understand its message to our hearts. There are silent moments upon the mountains when one feels the immensity of nature, and there are storms upon the sea in which one realizes the presence of an immeasurable power. He has but lived in part to whose heart the mountains and the sea have never spoken. Both supply an infinite need of the soul. In the solitude of the mountains and in the voice of the storm-driven sea there is companionship with the Eternal.